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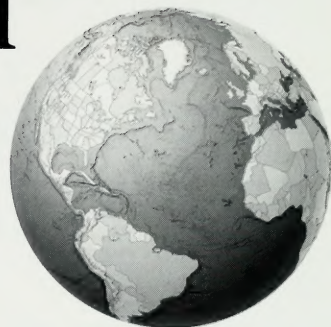
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# The International Journal of Accounting



VOLUME 38, NUMBER 1, 2003

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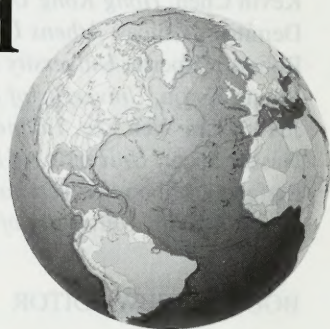


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## **Audit firm size, public ownership, and firms' discretionary accruals management**

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### **Abstract**

In this study, we developed and tested three hypotheses concerning earnings management in Belgium (i.e., a continental European environment). The three hypotheses are about: (1) income smoothing, (2) Big Six auditors, and (3) public ownership. The study is motivated by the finding by Becker, DeFond, Jiambalvo, & Subramanyam [Contemp. Account. Res. 15 (1998) 1] and Francis, Maydew, & Sparks [Audit. J. Pract. Theory 18 (1999) 17] that Big Six audit firms act as a constraint on both income-increasing and income-decreasing earnings management. The finding raises questions as to the determinants of earnings management in other institutional settings such as that of Belgium. Accordingly, we study publicly available financial statements of a matched sample of publicly and privately held Belgian firms. Following Francis et al. [Audit. J. Pract. Theory 18 (1999) 17], DeFond and Subramanyam [J. Account. Econ. 25 (1998) 35], and Becker et al. [Contemp. Account. Res. 15 (1998) 1], we use discretionary accruals as a measure of earnings management. We find that Belgian companies—both private and public—engage in income smoothing and manage earnings opportunistically to meet the benchmark target of prior-year earnings. The evidence is also supportive of the other two hypotheses, but only when companies have earnings that are above target and have incentives to smooth earnings downwards. The fact that our results on the impact of Big Six auditors and ownership type are different for above and below target firms in Belgium, and differ with findings on U.S. samples, can be explained by the Belgian institutional environment.

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*Keywords:* Audit quality; Discretionary accruals; Earnings management; Governance

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## 1. Introduction

Accounting numbers are an important summary statistic of the financial performance of firms, and therefore are of interest to stakeholders. Because the magnitude of earnings is affected by accounting decisions, two interesting questions are whether firms “manage” earnings through such decisions and what determines earnings management. The vast majority of studies on earnings management focuses on incentives for and constraints on earnings management by *listed* firms. Prior evidence supports the following incentives for earnings management: for both explicit (such as bonus plans and debt covenants) and implicit contracts,<sup>1</sup> capital markets and need for external financing,<sup>2</sup> the political and regulatory process,<sup>3</sup> and some specific circumstances (such as labor union contract negotiations, proxy contests, and earnings decreases or losses).<sup>4</sup> In regard to constraints on earnings management, the evidence supports: managerial and institutional ownership, audit committees, auditor size, and internal governance mechanisms such as the size of the board of directors.<sup>5</sup>

Although prior studies have focused on publicly held companies, little is known about the impact of public ownership on earnings management. Even less is known about the incentives for and constraints on earnings management in privately held companies. In this study, we investigate these issues in a continental European institutional setting, characterized by the predominant privately held companies. Our paper develops and tests three hypotheses on the impact of income smoothing, auditor size, and public ownership on earnings management.

We used Belgian data because financial statement data are publicly available for privately held firms in Belgium.<sup>6</sup> Since Belgium has different institutional, accounting, and auditing characteristics from the United States, we have been careful to consider these differences when formulating the earnings management hypotheses and developing the research design. As various stakeholders use financial reporting in the Belgian institutional context, we follow Trueman and Titman (1988) and argue that firms, both publicly and privately held, avoid

<sup>1</sup> See for example Dechow, Sloan, and Sweeney (1996), Gaver, Gaver, and Austin (1995), Healy (1985), Holthausen, Larcker, and Sloan (1995) for bonus plans; DeAngelo, DeAngelo and Skinner (1994), DeFond and Jambalvo (1994), Sweeney (1994) for debt covenants; Bowen, DuCharme, and Shores (1995) and Kasanen, Kinnunen, and Niskanen (1996) for implicit contracts.

<sup>2</sup> See Aharony, Lin, and Loeb (1993), Friedlan (1994), Neill, Pourciau, and Schaefer (1995), Rangan (1998), Shivakumar (1998), Subramanyam (1996), Teoh, Welch, and Wong (1998).

<sup>3</sup> Evidence is reported, for example, in the following studies: Guenther (1994), Han and Wang (1998), Hunt, Moyer, and Shevlin (1996), Jones (1991), Key (1997).

<sup>4</sup> Burgstahler and Dichev (1997), DeAngelo (1986, 1988), Liberty and Zimmerman (1986).

<sup>5</sup> Warfield, Wild, and Wild (1995) and Rajgopal and Venkatachalam (1998) for the impact of managerial ownership and institutional ownership, respectively. Beasley (1996), Becker, DeFond, Jambalvo, and Subramanyam (1998), Dechow et al. (1996), DeFond and Jambalvo (1991, 1993), Francis, Maydew, and Sparks (1999), Peasnell, Pope, and Young (2000), for the impact of internal and external governance mechanisms.

<sup>6</sup> In Belgium, all firms that meet certain legal form and size criteria are mandated to file financial statements with the Belgian National Bank.



deviations in reported earnings to influence stakeholders' perceptions of the stability of economic earnings. Therefore, we first hypothesize and then find that income-increasing earnings management occurs when firms have premanaged earnings that are lower than prior-year reported earnings, and income-decreasing earnings management occurs in the opposite case.

Conditional on the direction of the earnings management incentive, we then formulate two more hypotheses: one on the constraining impact of auditor size and one on the positive impact of public ownership on earnings management. Discretionary accruals are used as a measure for earnings management in this study.

Our study contributes to the earnings management and auditing literatures as follows. First, we provide evidence on the differences in earnings management between publicly and privately held firms. Prior studies use the results of an experiment (Cloyd, Pratt, & Stock, 1996) or a questionnaire (Penno & Simon, 1986) and are confined to testing differences in accounting procedure choices. As earnings management through accrual decisions is less visible, it might well be that it is used more extensively than earnings management through accounting procedure choices. We use discretionary accruals as a measure of earnings management. The results indicate that listed firms engage less in income-decreasing earnings management than nonlisted firms. Second, our study discusses the impact of the appointment of a Big Six auditor<sup>7</sup> on earnings management in privately held firms. We report evidence of audit-quality differentiation between Big Six and non-Big Six auditors when they are confronted with *income-decreasing* earnings management. However, we do not find evidence of audit-quality differentiation between both types of auditors when they are confronted with income-increasing earnings management, not even for publicly held firms.

The paper proceeds as follows. In the next section, we briefly discuss differences between the American and Belgian institutional environments that are relevant to this study. In Section 3, we discuss the hypotheses that are tested in this paper. In Section 4, we discuss how the variables are measured in this paper and specify our empirical model. We present our sample selection and some univariate results in Section 5. Our main (multivariate) results are discussed in Section 6, together with some sensitivity analyses. In the final section we conclude the paper.

## 2. Some institutional differences between Belgium and the United States

The evidence supports the existence of institutional differences between countries (Ball, Kothari, & Robin, 2000; Joos & Lang, 1994, 1997; Paisey, 1991; Nobes, 1984). These include differences, for example, in providers of finance (in particular, the importance of capital markets), in ownership and corporate governance, and in legal systems. Such factors may then lead to differences that can be observed in international accounting. Some differences at the accounting level are sources of demand for accounting and auditing (that

<sup>7</sup> Note that the data in this study relate to the period 1991–1997, which is before the PWC merger and the collapse of Andersen. We therefore continue to use Big Six instead of Big 4.

is, different goals for financial reporting and different key users of financial statements), conceptual frameworks and accounting systems, and sources of accounting rules and degree of detail in which they are specified. The Belgian accounting system is representative of the accounting systems of Latin countries (Gray, 1988) and Belgian law is representative of the French family of law systems (LaPorta, Lopez-de-Silanes, Shleifer, & Vishny, 1998). We believe, therefore, that the hypotheses we derive can be tested in other continental European countries that belong to the same class of accounting and family of law systems, such as Spain, France, Portugal, Turkey, Italy, etc.

Stock markets are far less developed in Belgium than in the United States. The vast majority of Belgian companies are privately held, often family-owned, and typically ownership is concentrated. Fewer than 150 companies are listed although about a quarter of a million Belgian companies file financial statements with the Belgian National Bank. The number of Belgian listed companies per one million inhabitants amounts to 15.5 as compared to 35.6 in the United Kingdom and 30.1 in the United States, and the ratio of market capitalization to GDP is only 38% in Belgium as compared to 123% in the United Kingdom and 82% in the United States. Further, listed companies are often holding companies. Banks are a major source of business finance in Belgium and bankers often have better access to private information about the firms than public financiers. Agency problems other than between management and shareholders, are relevant in Belgian companies, namely, between bankers and shareholders, and bankers and management.

Unlike the system in the United States, publicly as well as privately held companies that meet certain legal form and size criteria are *mandated* to file financial statements with the Belgian National Bank. Financial reporting and corporate governance requirements are not very different for listed and unlisted firms in Belgium. The major exception is that listed firms are also required to provide some limited semi-annual (unaudited) financial information. Thus, the Belgian environment is an ideal laboratory to examine the impact of mere stock market effects on earnings management.

Belgian companies (privately and publicly held) only submit one set of individual accounts for both financial reporting and tax purposes. As taxes are raised at the individual company level, but no separate set of (nonconsolidated) financial statements are issued for tax purposes in Belgium, the accounting choices in individual company accounts are typically tax-driven. However, as far as the group accounts are concerned, the Belgian consolidation law requires that all tax-driven accounting choices in individual financial statements be reversed in consolidated financial statements. Since a major objective of this study is to focus on differences between publicly and privately held firms, we only included group accounts in our sample. This was done to eliminate potential direct<sup>8</sup> tax effects on earnings management.

Unlike the case in the United States, the desire to monitor management was historically not a major source of *voluntary* demand for external auditing in Belgium. External auditing is

<sup>8</sup> There may, however, be indirect tax effects on earnings management. See also Section 6.2 on results for below target firms.



*mandatory* for all large (publicly and privately held) companies in Belgium.<sup>9</sup> The regulator's motivation for such a widespread mandatory audit requirement is the protection of *all* stakeholders of a company (such as employees, suppliers, banks, and the government). In regard to the audit environment, a notable difference between the United States and Belgium is the lack of auditor litigation in Belgium. There have only been eight court cases against auditors since the foundation of the Belgian Kingdom in 1831 (Aerts, 2002). In litigious environments, the threat of litigation works as a deterrent against below-standard audit quality. When such a threat is absent, the auditor may feel tempted to keep a friendly relationship with his client in order to safeguard the appointment, and thus be tempted not to constrain earnings management. However, various alternative quality enforcement mechanisms exist, including the 3-year auditor tenure rule,<sup>10</sup> disciplinary sanctions imposed by the Belgian Institute of Auditors after violation of the Ethical Code,<sup>11</sup> directed investigations, and peer reviews organized by the Belgian Institute of Auditors.

Finally, the Big Six (now Big Four) market concentration ratio is about 50% in Belgium, which is lower than the ratio in Anglo-Saxon and most other European countries (Schaen & Maijoor, 1997; Weets & Jegers, 1997; Willekens & Achmadi, *in press*). Note that Big Six market concentration in the public client segment of the Belgian audit market is comparable to Anglo-Saxon environments. However, in the private client segment of the Belgian audit market, Big Six concentration is much lower, only about 35% (Sercu, VanderBauwhede, & Willekens, 2002).

### 3. Research hypotheses

We first hypothesize that Belgian firms avoid large variability in reported income numbers and engage in income smoothing irrespective of whether they are publicly or privately held. Then, we develop our two major hypotheses, on the impact of public ownership and auditor size on earnings management behavior.

#### 3.1. *Income Smoothing Hypothesis*

It is widely assumed that earnings management opportunism is applicable to companies where there is separation between ownership and control (Francis et al., 1999). There is empirical evidence of income smoothing by publicly held firms (DeFond & Park, 1997;

<sup>9</sup> Large companies are companies which meet at least two of the following criteria: total assets >3,125,000 Euro; turnover >6,250,000 Euro; number of employees >50. Companies with more than 100 employees are always classified as a large company irrespective of their total assets or turnover and hence always have to appoint an independent auditor.

<sup>10</sup> In Belgium, auditors are tenured for periods of 3 years; this requirement is set to promote auditor independence as the opportunity for firms to dismiss their auditor after a nonclean audit opinion is reduced. The same auditor can be reappointed for another 3 years; there is no mandatory auditor rotation.

<sup>11</sup> During the period 1990–1999, 126 disciplinary cases against auditors were initiated relative to an average number of certified auditors of 800 in that period. In about 66% of those cases, auditors were indeed sanctioned.

Gaver et al., 1995; Healy, 1985; Young, 1998). We believe that stability in reported income numbers is also a valid incentive for earnings management in privately held firms. Our belief is based on Trueman and Titman's (1988) argument that firms may avoid deviations in reported earnings to influence stakeholders' perception of the stability of the underlying economic earnings, and thus their assessment of the probability of bankruptcy of a firm. This might then influence the terms of trade of a firm with its various stakeholder groups such as customers, suppliers, short-term creditors, and employees. As these various stakeholder groups are important users of financial reporting in Belgium, we expect that both publicly and privately held Belgian firms have incentives to manage earnings opportunistically to avoid variability in reported earnings. If firms indeed have incentives to smooth income, they will engage in income-increasing earnings management when premanaged earnings are below target, whereas the opposite will occur when premanaged earnings are above target. This leads to our first hypothesis:

**Income Smoothing Hypothesis:** Belgian companies (both private and public) engage in income smoothing and manage earnings opportunistically to meet the benchmark target of prior-year earnings.

The Income Smoothing Hypothesis implies that more income-increasing (income-decreasing) discretionary accruals are expected for below (above) target firms. Whereas prior studies mainly focused on the analysis of determinants of income-increasing earnings management, determinants of income-decreasing earnings management are equally important in our study. The reason is that our study analyzes a sample of continental European, viz. Belgian, firms, and includes both privately and publicly held firms.

### *3.2. Monitoring Effect of Auditor Size Hypothesis*

Monitoring mechanisms typically work as restraining factors on earnings management. Prior studies (Becker et al., 1998; Francis et al., 1999) show that auditor size constrains earnings management, as a lower level of discretionary accruals can be observed for firms that appoint Big Six auditors. The underlying rationale is that larger (Big Six) auditors are more competent and/or independent (and so provide higher-quality services) than smaller (non-Big Six) auditors,<sup>12</sup> and they have more to lose when an audit failure occurs. Such losses are, for example, quasi rents (DeAngelo, 1981) or brand name reputation (Klein & Leffler, 1981). Larger (Big Six) auditors may therefore be less tolerant vis-à-vis the level of discretionary accruals adopted by firms than smaller (non-Big Six) auditors. As all prior studies are based on samples of publicly listed firms, it is unknown whether auditor size also

<sup>12</sup> Competence and independence are generally considered as two key dimensions of audit quality. As they are not directly observable, various proxy measures for audit quality exist and tolerance vis-à-vis earnings management is one of these. The Big Six/non-Big Six dichotomy has been widely used in empirical audit research, such as in audit-fee studies (Francis, 1984; Francis & Simon, 1987; Palmrose, 1986; Simon & Francis, 1988; Simunic, 1980) and auditor demand and switching studies (Carpenter & Strawser, 1971; DeFond, 1992; Francis et al., 1999; Francis & Wilson, 1988; Palmrose, 1988; Simunic & Stein, 1987).



works as a constraint on earnings management in continental European, viz. Belgian, firms or in privately held firms.

One could argue that an audit failure is less likely to be detected for privately held companies. The rationale is that they are not subject to the scrutiny of market regulators (such as the SEC in the United States and the Commission for Banking and Finance in Belgium) and financial analysts. Also, potential damage to an audit firm's reputation after audit failure is likely to be smaller for privately than for publicly held client firms. Another rationale is that the Belgian audit environment is far less litigious than the American. However, litigation and potential damage awards are unlikely to be the sole determinants of high-quality audit services. The Belgian Institute of Auditors installed various mechanisms to monitor members' compliance with professional and ethical standards. These include mandatory peer reviews, special investigations, and sanctioning procedures. Also, Big Six firms are international and claim they offer uniform quality worldwide. Finally, prior evidence about the Belgian audit market indicates that there are some differences between Big Six and other audit firms in regard to audit fees charged and audit reports issued. Willekens and Achmadi (in press) report evidence of fee premia for Big Six auditors. This could point in the direction of quality differences. Gaeremynck and Willekens (in press) find more stringent reporting by Big Six auditors when the problems in client firms are subtle, but find that there are *no* differences in audit reporting between Big Six and non-Big Six audit firms when problems in client firms are very obvious. The above reasoning results in the following hypothesis regarding the impact of auditor size on earnings management in Belgium:

**Monitoring Effect of Auditor Size Hypothesis:** Big Six auditors *restrain* (reduce) earnings management and hence the use of discretionary accruals to meet earnings targets in Belgium.

Given that companies engage in income smoothing, "restraining earnings management" implies that smaller income-decreasing (income-increasing) discretionary accruals are expected for above (below) target firms that are audited by a Big Six auditor.

### 3.3. Ownership Incentive Hypothesis

There is empirical evidence on the impact of capital markets on earnings management by listed companies. The results show that listed firms manage earnings to communicate private information to stock markets (Subramanyam, 1996), to meet or beat analyst's earnings expectations (Abarbanell & Lehavy, 1999; Burgstahler & Eames, 1999; Degeorge, Patel, & Zeckhauser, 1999; Payne & Robb, 2000), to raise additional funds on more favorable terms, or to sell their stockholdings at a higher price (Aharony et al., 1993; Dechow et al., 1996; Friedlan, 1994; Rangan, 1998; Teoh et al., 1998). Given this evidence, it is reasonable to expect that public ownership provides an *incentive* to manage earnings upward, such that stock market expectations about earnings are fulfilled. Not meeting stock market expectations may have a negative impact on market value through declines in stock prices, which may in turn increase a firm's cost of capital. The above

reasoning results in the following hypothesis on the impact of public ownership on earnings management:

**Ownership Incentive Hypothesis:** Public ownership works as an *incentive* to manage earnings upward and has a positive impact on discretionary accruals.

Given that firms also engage in income smoothing, the Ownership Incentive Hypothesis is to be interpreted as follows. For below target firms, we expect publicly held firms to adopt even more pronounced positive discretionary accruals strategies compared to privately held firms, because of additional expectations from the stock market. For above target firms, we expect that privately held firms will engage in more aggressive income-decreasing earnings management than publicly held firms. In both cases, the impact of public ownership on earnings is positive, *ceteris paribus*.

#### 4. Model specification and variable measurement

##### 4.1. Earnings management measure

We focus on earnings management through unexpected or discretionary accruals. The total accruals are computed as the change in noncash working capital, minus depreciation, amortization (of accrued setup costs, intangible and tangible assets), write-offs, and losses on asset disposals minus (plus) increases (decreases) in provisions. There are various models that separate total accruals in discretionary and nondiscretionary accruals (Dechow, Sloan, & Sweeney, 1995). The more refined models—such as the time-series, cross-sectional Jones (Jones, 1991), and modified Jones model (Dechow et al., 1995)—control for changes in accruals that are due to changes in the firm's economic condition. However, data limitations prevented us from using these techniques. In particular, time-series models could not be used because time-series data are too limited for Belgian firms, which were only mandated to submit consolidated financial statements from 1991 onwards. Likewise, cross-sectional models, which are estimated by industry and year, could not be used because the number of observations per industry is too small. (Only about 370 Belgian firms are required to submit consolidated financial statements.) Therefore, we calculate unexpected or discretionary accruals as changes in total accruals between the current and the previous year scaled by lagged total assets (DeAngelo, 1986; DeAngelo et al., 1994). That is,

$$DAC_{it} = TAC_{it} - TAC_{it-1} \quad (1)$$

where  $DAC_{it}$  = discretionary accruals for firm  $i$  in year  $t$  scaled by lagged total assets;  $TAC_{it}$  = total accruals for firm  $i$  in year  $t$  scaled by lagged total assets.

We recognize that this model does not allow for changes in total accruals due to changes in the firms' economic condition. However, we control for any potential measurement error by including a measure of firm performance and a measure of investments in depreciable fixed assets in the multiple regression analysis.



#### 4.2. Definition of premanaged earnings and the income smoothing target

The Income Smoothing Hypothesis implies that firms manage earnings towards an earnings target. Following prior studies (DeFond & Park, 1997; Gaver et al., 1995; Guay, Kothari, & Watts, 1996; Subramanyam, 1996; Young, 1998), we define *premanaged earnings* as this year's reported earnings minus discretionary accruals. We use last year's earnings as the *target* income as it fulfills the condition that firms try to meet a simple benchmark (Burgstahler & Dichev, 1997; Payne & Robb, 2000). Further, the use of alternative targets is not possible for the following reasons. First, earnings targets that proxy for market expectations, such as analyst forecasts, are not available for privately held companies. Second, internal budget targets are not available for either publicly or privately held companies. Finally, consolidated data are not long enough to estimate time-series models (consolidated data on Belgian groups are only available since 1991).

We need the above measures to test our Income Smoothing Hypothesis. In particular, we will separate firms that have premanaged earnings that are larger than prior-year earnings (above target firms, or Sample 1) from those firms that have premanaged earnings that are smaller than prior-year earnings (below target firms, or Sample 2). Then we will analyze whether discretionary accruals of above target firms are significantly different from those of below target firms.

#### 4.3. Multivariate model

To test our major hypotheses on auditor size and ownership, we developed the following multivariate model:

$$\begin{aligned} \text{DAC}_{it} = & \beta_0 + \beta_1 \text{AUDIT}_{it} + \beta_2 \text{TYPE}_{it} + \beta_3 \text{AUDIT}_{it} \times \text{TYPE}_{it} + \beta_4 \text{FIN}_{it} \\ & + \beta_5 \text{SIZE}_{it} + \beta_6 \text{LEV}_{it} + \beta_7 \text{CF}_{it} + \beta_8 \text{INVEST}_{it} + \varepsilon_{it} \end{aligned} \quad (2)$$

Table 1 reports the test and control variables of our model as well as the expected sign of the parameters, both for the above and below target subsamples (Samples 1 and 2, respectively). Note that incentives of earnings management are unidirectional in sign for both samples. Restraining factors tend to work towards zero rather than being unidirectional (a good auditor is expected to curb both upward and downward earnings management).

To capture the impact of auditor size on earnings management and thus test for the validity of our Monitoring Effect of Auditor Size Hypothesis, we introduce an indicator variable, *AUDIT*, which is equal to one if the firm is audited by a Big Six auditor, and zero otherwise. Prior studies (Becker et al., 1998; Francis et al., 1999) report that Big Six auditors (which are considered to deliver a higher level of audit quality than non-Big Six auditors) constrain earnings management through discretionary accruals. We argued that having a Big Six auditor constrains a firm's attempt to increase as well as decrease earnings. Therefore, we expect a significant positive coefficient on the *AUDIT* variable in the above target subsample (Sample 1), while we expect a significant negative coefficient in the below target subsample (Sample 2).

Table 1

Specification of our multiple regression model, variable measurement and predictions as to the sign of the explanatory variables for Model 1 and Model 2

Variable	Definition	Predicted sign of coefficients in Sample 1 (above target subsample)	Predicted sign of coefficients in Sample 2 (below target subsample)
<i>Dependent variable</i>			
$DAC_{it}$	Discretionary accruals for firm $i$ in year $t$ scaled by lagged total assets = $TAC_{i,t} - TAC_{i,t-1}$		
<i>Independent variables</i>			
<i>Test variables</i>			
$AUDIT_{it}$	Dummy, 1 if firm $i$ has a Big Six auditor, zero otherwise	+	–
$TYPE_{it}$	Dummy, 1 if firm $i$ is listed, zero otherwise	+	+
$AUDIT_{it} \times TYPE_{it}$	The interaction of the dummies $TYPE_{it}$ and $AUDIT_{it}$ . Takes the value 1 if a firm-year observation is of a listed company that is audited by a Big Six auditor, zero otherwise	?	?
<i>Control variables</i>			
$FIN_{it}$	Dummy, 1 if for firm $i$ in year $t$ the sum of financial debt and paid-in capital increased in the year after the event year, zero otherwise	+	+
$SIZE_{it}$	Natural logarithm of total assets for firm $i$ in year $t$	–	–
$LEV_{it}$	Ratio of debt over equity for firm $i$ in year $t$	+/–	+/–
$CF_{it}$	Operating cash flow for firm $i$ in year $t$ scaled by lagged total assets	–	–
$INVEST_{it}$	The amount of the increase or decrease in tangible fixed assets for firm $i$ from year $t-1$ to year $t$ , scaled by lagged total assets.	–	–

Next, we introduce an indicator variable (TYPE) to assess the impact of ownership type on earnings management, and thus to test our Ownership Incentives Hypothesis. TYPE equals one if a firm is listed on the Brussels Stock Exchange, and zero otherwise. We expect a positive coefficient on TYPE for both subsamples.

Note that we also include the interaction between the variables AUDIT and TYPE ( $AUDIT \times TYPE$ ) in the model. We do this because it is likely that audit-firm behavior is also dependent on market segment. That is, auditor size may cause a different reaction in publicly and privately held firms. By including the interaction term, we control for this and assess whether there is indeed differential behavior depending on the market segment. If the coefficients on AUDIT and TYPE as well as the interaction term ( $AUDIT \times TYPE$ ) are significant, then the coefficient on the variable AUDIT gives the impact of auditor size for



privately held companies, and the coefficient on TYPE gives the effect of public ownership for firms audited by non-Big Six auditors. The sum of the coefficients on AUDIT and  $AUDIT \times TYPE$  gives the impact of auditor size for publicly held companies, and the sum of the coefficients on TYPE and  $AUDIT \times TYPE$  gives the impact of ownership on earnings management for Big Six audited companies. Finally, the sum of the coefficients on AUDIT, TYPE, and  $AUDIT \times TYPE$  gives the *joint* impact of being audited by a Big Six auditor and being listed on the Brussels Stock Exchange. Further, a positive (negative) coefficient on the interaction term in the below target (above target) subsample would mean that the constraining effect of auditor size is more pronounced in the publicly held client segment than in privately held client segment. A positive (negative) coefficient in the below target (above target) subsample also indicates that the incentive effect of public ownership is stronger in companies audited by Big Six auditors than in companies audited by non-Big Six auditors. A negative (positive) coefficient on the interaction term in the below target (above target) subsample would by contrast suggest that the constraining effect of auditor size is less pronounced in the publicly held client segment of the audit market, and, alternatively, that the incentive effect of public ownership is less pronounced in firms audited by Big Six auditors.

Several control variables are also introduced in the model. Prior studies suggest that income-increasing earnings management is induced by the need for additional external financing (Dechow et al., 1996) or external funds from stock markets (Aharony et al., 1993; Friedlan, 1994; Rangan, 1998; Shivakumar, 1998; Teoh et al., 1998). Information asymmetries and agency problems in the relationship between firms and nonpublic external financiers, such as bankers, imply that the need for additional debt financing may be an important incentive for earnings management as well. To control for the (potential) impact of external financing, we include an indicator variable, FIN. Since private debt finance is an important source of finance for Belgian firms, we examine the impact of increases in both debt and equity financing. FIN takes a value equal to one if there is an increase in external finance (equity and/or debt) the year subsequent to the year in which earnings are reported (and potentially manipulated); it takes the value zero otherwise. We expect a positive sign on this coefficient in both subsamples.

The political cost (SIZE) hypothesis suggests that larger firms (that is, firms with more political visibility) prefer income-decreasing accounting choices. The variable SIZE is included to control for this effect. This variable is measured as the natural logarithm of total assets. Theory (Watts & Zimmerman, 1986) suggests that the coefficient on this variable will be negative.

The next control variable we introduce is the leverage of the firm. We include leverage (LEV) to control for discretionary accruals management in highly levered firms and motivate this as follows. First, Becker et al. (1998) suggest that leverage can be a proxy for potential income-decreasing accruals management in firms suffering from financial distress. Second, the debt–equity hypothesis (Watts & Zimmerman, 1986) suggests that high leverage works as an incentive for income-increasing earnings management. Since these two references stipulate a different relationship between discretionary accruals and leverage, we do not propose an expected sign on the coefficient of leverage.

Dechow et al. (1995) and Young (1999) report that the existing accrual expectation models may yield measurement error in the discretionary accruals proxy, and hence, misspecified

tests of earnings management for firms with extreme financial performance. We include cash flow from operations (CF) to control for this potential misspecification. As in the above-mentioned studies, we expect to find a negative coefficient on this variable.

Investments can result in smaller total accruals due to the associated increase in depreciation expense. To control for this impact we included a variable, INVEST, that is measured by the level of investment in tangible fixed assets in the year under study (year  $t$ ) scaled by total assets at the beginning of that year (or, alternative  $t - 1$ ). We predict a negative coefficient on this variable.

We scaled all continuous variables in our model by lagged total assets to allow for any size effects.

## 5. Sample selection and univariate analysis

### 5.1. Sample selection

From the Belfirst,<sup>13</sup> we selected *all* industrial and commercial firms that were listed on the Brussels Stock Exchange and published *consolidated* financial statements ( $n=52$ ) (see Table 2). We needed consolidated financial statements because accounting choices in individual financial statements are motivated by taxes. The reason is that Belgian companies only submit one set of individual accounts for both financial reporting and tax purposes. However, the Belgian consolidation law requires that all tax-driven accounting choices in individual financial statements be reversed in consolidated financial statements. Therefore, we do not expect taxes to have a *direct* impact on accounting and, in particular, earnings management in consolidated financial statements.<sup>14</sup>

The sample was matched on industry (at least two-digit NACE) and size (total assets) with a sample of nonlisted firms. Thirteen companies were deleted, as we could not find a matching firm with consolidated financial statements. For the remaining 39 companies, data of consolidated financial statements were obtained for as many years as possible between 1991 and 1997. For each year included, consolidated financial data had to be available for the listed as well as its matching company. This resulted in a sample of 352 firm-year observations. The number of firm-observations used in the tests was reduced to 136 (and 62 companies), because 3 years of observations are needed to compute (1) discretionary

<sup>13</sup> The Belfirst is a database that contains the financial statement data of all Belgian companies that are legally required to file financial statements with the Belgian National Bank. The total number of listed firms in 1997 was about 130. One hundred two of them published consolidated financial statements. Holding, financial, and insurance companies (50 in total) were deleted as their financial statements differ from those of industrial and commercial companies. Classification into industrial and commercial versus other companies is based on their NACE-code. The NACE-code is an industry classification chart, which is comparable to the US SIC.

<sup>14</sup> Note that this is confirmed by our sensitivity check on the impact of taxes on discretionary accruals (see Section 6.3).



Table 2

## Sample selection procedure

Total number of quoted companies with consolidated financial statements	102
Less	
Holding, financial, and insurance companies	50
Total number of industrial and commercial companies	52
Less	
Firms for which there was no match on industry and size with consolidated financial statements	13
Total number of industrial and commercial companies in sample matching companies	39
Less	
Firms for which the listed or its matching one have only one or two consecutive year(s) of consolidated data	12
Firms for which the listed or its matching one have only three consecutive years of consolidated data	4
Total number of companies in sample used in main analysis	62
Number of firm-year observations per industry used in main analysis	136

accruals and (2) a proxy for the need for external finance in the multiple regression analysis. Table 3 gives an overview of the number of firm-year observations and companies per industry.

Table 3

## Number of companies or firm-year observations (used in main analysis) per industry

One-digit NACE code	Two-digit NACE code	NACE	Companies	Firm-year observations
2	22	production and preliminary processing of metals	10	22
	24	manufacture of nonmetallic mineral products	4	12
	25	chemical industry	8	22
3	31	manufacture of metal articles	2	2
	32	mechanical engineering	2	4
	34	electrical engineering	2	4
4	41	food, drink and tobacco industry	4	8
	43	textile industry	2	4
	47	manufacture of paper and paper products, printing and publishing	2	6
	48	processing of rubber and plastics	2	4
5	50	general building and civil engineering without specialty	2	4
6	61	wholesale distribution	10	20
	63	agents	2	6
8	83	activities to banking, financial and insurance	6	12
	84	renting, leasing and hiring of movables	2	4
9	97	recreational services and other cultural services	2	2
Total			62	136

Table 4

Descriptive statistics on the test and control variables for the full sample and the above (sample 1) and below (sample 2) target subsamples<sup>a</sup>

Panel A: Categorical variables (proportion of dummy = 1)

	Full sample ( <i>n</i> = 136)	Sample 1 ( <i>n</i> <sub>1</sub> = 60)	Sample 2 ( <i>n</i> <sub>2</sub> = 60)
Audit	66.42	70	60
TYPE	50.00	46.7	53
FIN <sup>b</sup>	78.03	75	78.33
CAP <sup>b,c</sup>	18.94	71.66	71.66
DEBT <sup>b,c</sup>	71.64	15	20
DEBTCAP <sup>b,c</sup>	12.78	11.67	13.33

Panel B: Continuous variables

	Mean	S.D.	First quartile	Median	Third quartile
<i>DAC</i> <sup>b</sup>					
Full sample	0.0138	0.1526	– 0.0494	0.0156	0.0673
Sample 1	– 0.070	0.1261	– 0.1184	– 0.0486	– 0.01169
Sample 2	0.1064	0.1169	0.0325	0.0673	0.1459
<i>CF</i>					
Full sample	0.0892	0.0667	0.0434	0.0816	0.1281
Sample 1	0.0945	0.0704	0.0477	0.0804	0.1288
Sample 2	0.0847	0.0641	0.0395	0.0911	0.1269
<i>SIZE</i>					
Full sample	15.9404	1.59	14.6511	15.6265	17.08
Sample 1	15.9233	1.6737	14.6148	15.5274	17.0976
Sample 2	15.6989	1.4005	14.5268	15.5930	16.7302
<i>LEV</i>					
Full sample	0.5925	0.1502	0.4917	0.6033	0.6816
Sample 1	0.6096	0.7418	0.5030	0.6096	0.7418
Sample 2	0.5758	0.1488	0.4880	0.5733	0.6816
<i>INVEST</i>					
Full sample	0.0737	0.1027	0.0097	0.0564	0.0983
Sample 1	0.058173	0.077353	0.010264	0.05462	0.083067
Sample 2	0.0920	0.1206	0.4892	0.5920	0.6832

<sup>a</sup> For variable definitions, see Table 1.

<sup>b</sup> Number of observations reduced to 120 for DAC and 133 for FIN, DEBT, CAP, and DEBTCAP due to missing values.

<sup>c</sup> DEBT=dummy which takes the value 1 if a firm had an increase in its long-term financial debt in the year after consideration, zero otherwise. CAP=dummy which takes the value 1 if a firm had an increase in its equity financing in the year after consideration, zero otherwise. DEBTCAP=dummy which takes the value 1 if a firm had an increase in its financial debt as well as an increase in its equity financing in the year after consideration, zero otherwise.



## 5.2. Descriptive statistics, univariate tests, and the Income Smoothing Hypothesis

Table 4 presents some descriptive statistics on the variables in our analysis for the full sample and the subsamples of above and below target firms. The entries in the table are descriptive and self-evident. Our discussion is confined to the results on discretionary accruals, as the evidence is supportive of our Income Smoothing Hypothesis, namely, that Belgian companies (both private and public) engage in income smoothing and manage earnings opportunistically to meet the benchmark target of prior-year earnings. Indeed, from inspection of Table 4, it is clear that the mean and median values of discretionary accruals are significantly negative in the subsample of firm-years with premanaged earnings above target ( $-0.070$  and  $-0.0486$ , respectively); and that the mean and median values are significantly positive in the subsample of firm-years with premanaged earnings below target ( $+0.1064$  and  $+0.0673$ , respectively). We also performed some additional univariate tests. A chi-square test for independence indicates that the proportion of positive (negative) discretionary accruals is significantly higher in the below (above) target subsample (both  $P$  values  $<.0001$ ). Also, a  $t$  test for differences in means and a Wilcoxon rank sum test for differences in medians indicate that mean and median discretionary accruals are significantly lower in the above than in the below target subsamples ( $P$  value for  $t$  test and for Wilcoxon rank sum test  $<.0001$ ). All these evidence strongly support our Income Smoothing Hypothesis.

## 6. Auditor size and ownership results

Given that we find strong evidence supportive of income smoothing, we estimated our multivariate model (see Eq. (2)) separately for Samples 1 and 2. Table 5 reports the results of the OLS estimation for both samples.<sup>15</sup> In both cases, the model is significant at  $P<.01$ , and yields  $R^2$  values of .3187 and .2055, respectively. Note that the predicted signs of some explanatory variables are different for the below and above target subsamples. Therefore, we discuss the results of both subsamples separately.

### 6.1. Results for above target firms (Sample 1)

We find a significant positive coefficient on the AUDIT variable (at  $P=.0001$ ) for the above target subsample. This implies that Big Six auditors *constrain* (income-decreasing) earnings management more than non-Big Six auditors in the private client segment of the audit market when firms are smoothing income downwards. This is consistent with our Auditor Size Hypothesis. Note however that the interaction coefficient  $\text{AUDIT} \times \text{TYPE}$  is negative and significant ( $P=.0051$ ). This suggests that the Auditor Size Hypothesis is not confirmed in the

<sup>15</sup> Examination of the variance inflation factors (VIFs) of Model 1 and Model 2 indicates that our results are NOT distorted by multicollinearity.

Table 5  
Regression of discretionary accruals on test and control variables in above and below target subsamples

Variable	Model 1				Model 2			
	Above target subsample ( $n_1=60$ )				Below target subsample ( $n_2=60$ )			
	Predicted sign	Coefficient estimate	<i>t</i> statistic	<i>P</i> value	Predicted sign	Coefficient estimate	<i>t</i> statistic	<i>P</i> value
Intercept		– 0.73704	– 4.26	.0001		0.38737	1.84	.0722
<i>Test variables</i>								
AUDIT	+	0.18664	4.21	.0001	–	– 0.03344	– 0.78	.4375
TYPE	+	0.17237	3.25	.0020	+/–	– 0.05396	– 1.19	.2400
AUDIT $\times$ TYPE	?	– 0.19220	– 2.93	.0051	?	0.02076	0.32	.7473
<i>Control variables</i>								
FIN	+	– 0.00823	– 0.22	.8234	+	– 0.11566	– 3.20	.0024
SIZE	–	0.02333	2.59	.0125	–	– 0.00649	– 0.54	.5883
LEV	+/–	0.14868	1.48	.1449	+/–	– 0.04018	– 0.41	.6818
CF	–	0.81402	2.73	.0087	–	– 0.11422	– 0.42	.6787
INVEST	–	– 0.51183	– 1.97	.0547	–	– 0.14544	– 1.08	.2847
$R_a^2$			.3187			.2055		
<i>F</i> statistic			4.45			2.91		
<i>P</i> value of <i>F</i> statistic			.0004			.0095		

public client segment of the audit market, as the size (absolute value) of the coefficient on the interaction variable (AUDIT  $\times$  TYPE) is larger (0.19220) than the size of the coefficient on AUDIT (0.18664).<sup>16</sup> Note that this result may also indicate that AUDIT and TYPE may be substitutes in constraining earnings management.

The coefficient on the TYPE variable is positive and significant (*P* value of TYPE=.0020). This result is supportive of our hypothesis that public ownership works as an incentive to manage earnings upward and thus has a positive impact on discretionary accruals (for non-Big Six audited firms). Note again that the negative and significant interaction coefficient AUDIT  $\times$  TYPE (*P*=.0051) suggests that there is no ownership effect if the company is audited by a Big Six auditor.<sup>17</sup> The ownership results can be explained as follows. Given that firms have premanaged earnings that are above target, public firms decrease earnings less than private firms, because of the higher pressure from the stock market to meet earnings targets. The result is also consistent with privately held firms that decrease earnings more (smooth income downwards) than publicly held firms.<sup>18</sup> The reason for this can be that private firms, which are typically family owned in Belgium, have more incentives (than

<sup>16</sup> Note that both AUDIT and TYPE are indicator variables, and therefore the size of the coefficients can simply be added.

<sup>17</sup> In particular, a similar magnitude of earnings management occurs in publicly held companies that are audited by a Big Six auditor, in publicly held companies that are audited by non-Big Six auditors, and in privately held companies that are audited by Big Six auditors. Only in privately held firms audited by a non-Big Six auditor is there a higher level of income-decreasing earnings management.

<sup>18</sup> We thank an anonymous reviewer for this valuable insight.



public firms) to report lower profits, as there are direct family wealth effects if the firm is viewed as profitable. Higher profits may result in wage-increase demands from employees and higher taxation. As to the control variables, we only find significant parameter coefficients for the variables CF ( $P=.0087$ ), SIZE ( $P=.0125$ ), and INVEST ( $P=.0547$ ).

## 6.2. Results for below target firms (Sample 2)

We lack evidence that auditor size functions as a constraint on earnings management for firms that smooth income upwards (engage in income-increasing earnings management) and do not find evidence supportive of the Auditor Size Hypothesis. This can be concluded from the insignificant parameter value of the AUDIT variable ( $P=.4375$ ) and the interaction variable  $AUDIT \times TYPE$  ( $P=.7473$ ) for Sample 2. This result differs from U.S. evidence, which is supportive of the Auditor Size Hypothesis. We conjecture that companies in general have weaker incentives to increase earnings in Belgium than in the United States, and that, therefore, auditor size has no significant association with discretionary accruals in the below target case.

Note that our result on the AUDIT variable for below target firms differs from our result for above target firms. This indicates that there are differences in Belgium with respect to auditors' tolerance vis-à-vis earnings management, depending on whether they are confronted with income-increasing or income-decreasing earnings management strategies. As auditors face almost no risk of stockholder litigation in Belgium, there may be no incentive for auditors to report conservatively in the below target case. The fact that this incentive does seem to exist in the above target case may be attributable to the auditor's worries about the taxation authorities if their clients are too aggressive in lowering their taxable income. Even though tax-driven accounting rules are to be overridden for group accounts in Belgium, the tax environment may affect the audit firms' behavior and therefore may influence earnings management indirectly.

Finally, our results are also consistent with the conjecture that Big Six and non-Big Six (in fact second-tier) auditors are generally equally competent at detecting earnings management, but non-Big Six auditors only constrain it when faced with a sufficiently large business risk (that is in the below target cases when firms have incentives to smooth earnings upwards), whereas Big Six auditors always constrain. This also implies that non-Big Six auditors are "less independent" than their Big Six counterparts, but only when confronted with income-decreasing earnings management.

We also do not find evidence that is supportive of the Ownership Incentive Hypothesis in the below target sample, as TYPE ( $P$  value=.2400) and  $AUDIT \times TYPE$  ( $P=.7473$ ) are not significant. This indicates that there is no difference in the level of earnings management between publicly held and privately held companies. An explanation for the lack of (an incentive) effect of ownership in the below target case in Belgium may be that management is not under the same kind of stock price pressure as in the United States. This "weaker" incentive effect may no longer dominate the higher expected cost of earnings management detection for publicly held firms because of greater scrutiny on the quality of their earnings numbers. Note, however, that we cannot rule out that the insignificant results are caused by

the relatively low power of discretionary accruals tests (see Dechow et al., 1995). As estimations of discretionary accruals may include some nondiscretionary accruals, this may weaken our tests.

### *6.3. Sensitivity checks*

To test the robustness of the model, we performed several sensitivity checks on the definition of the above and below target groups as well as on the control variables. We first discuss some sensitivity checks on the definition of the above and below target group. DeFond and Park (1997) and Gaver et al. (1995) adopt a similar research design that divides the observations into an above and below target group based on premanaged earnings. They point out that selection bias may be a concern. Following DeFond and Park, we tested the sensitivity of our results to this potential misspecification by partitioning our sample based on proxies for above and below target firms, which are not influenced by our estimate of discretionary accruals. First, we used the change in postmanaged (that is reported) earnings to partition firms in above and below target companies. Second, we used the change in operating cash flow to distinguish firms that have incentives to increase income to avoid decreases in reported income from firms that have incentives to decrease income to avoid increases in reported income. Results of a chi-square test of independence of our partitioning variable and the sign of discretionary accruals confirm that firms use discretionary accruals to decrease earnings in above target firm-years and increase earnings in below target firm-years.

Besides using alternative measures to partition firms in above and below target companies, we checked the robustness of our results to the target itself. In the basic model, last year's earnings are used as targets but other earnings targets can also be introduced in the model. One of those is that markets and stakeholders expect a certain growth in earnings. We tested the sensitivity of our results in the above and below target subsamples by reclassifying our firm-year observations on whether premanaged earnings were higher or lower than last year's earnings plus an earnings growth factor varying between 1% and 10%. We find that only a small amount of firms switch from the above to the below target subsamples. In particular, there is one firm-year observation that switches subsamples at a growth factor of 6% and another one at a growth factor of 7%. We subsequently reran our regressions on the above and below target subsamples. Results of those regressions are qualitatively similar to those reported in the body of the text and so seem to be robust to an alternative earnings target.

We also performed some sensitivity checks on the control variables. In the basic model, the control variable  $FIN_{it}$  measures whether the firm raised new capital or debt. We included separate dummy—variables for whether firms have 1) only an ex post increase in debt financing or not, (2) only an ex post increase in equity financing or not, or (3) an ex post increase in equity as well as debt financing or not. Results on the test variables are similar to those reported in the basic model. We also included other control variables that relate to stakeholders other than debtholders. For example, employees and labor forces are important users of financial statements in Belgium. Good group performance may trigger labor forces' demand for better wage and working conditions. As a consequence, firms may especially avoid increases in reported earnings, and have incentives to decrease earnings or increase



earnings to a lower extent. To control for this effect, we included in our model a proxy for labor intensity, measured as the cost of employees over sales. This variable was, however, not significant and results on the other variables are qualitatively similar to the results reported in the body of the text. Finally, to verify that the tax environment has no direct impact on the earnings management of group accounts, we ran the model on both subsamples, including a tax variable, i.e., an indicator variable for whether the company paid taxes in the prior year or not. Our conjecture is that firms that paid taxes the prior year have no tax-loss carry-forwards and have therefore more incentives to engage in income-decreasing earnings management in the current year. The tax variable was not significant, which is consistent with our argument that there are no direct tax effects on earnings management in consolidated accounts. The results on the test variables were similar to those reported in the body of the text.

## 7. Conclusion

In this paper, we formulate and test three hypotheses on earnings management in Belgium: (1) the Income Smoothing Hypothesis, (2) the Monitoring Effect of Auditor Size Hypothesis, and (3) the Public Ownership Incentives Hypothesis. We find evidence that Belgian companies—both private and public—engage in income smoothing and manage earnings opportunistically to meet the benchmark target of prior-year earnings. The evidence is also supportive of the other two hypotheses, but only when companies have earnings that are above target and have incentives to smooth earnings downwards. Our results also suggest that auditor size and public ownership have a similar effect on earnings management in above target companies. We do not find evidence that auditor size works as a constraint for below target firms; neither do we find that public ownership has an impact then. The fact that our results on the impact of auditor size and ownership type are different for above and below target firms in Belgium, and differ with findings on United States samples, can be explained by the Belgian (i.e. continental European) institutional environment. Apparently, audit firms' tolerance vis-à-vis earnings management depends on the riskiness of the situation: in below target contexts, auditors (thus also Big Six firms) may have no incentive to report conservatively due to the lack of auditor litigation in Belgium. In above target contexts, on the contrary, Big Six auditors are less tolerant and this may be attributable to their fear of the taxing authorities. The lack of an ownership effect in below target contexts may be attributable to the lack of the stock pressure found in the United States.

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## Information asymmetry and accounting disclosures for joint ventures

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### Abstract

In September 1999, the Financial Accounting Foundation issued a special report recommending the use of the equity method supplemented with appropriate disclosures for corporate joint ventures in the United States. This study, using data for corporate joint ventures in Singapore, provides some preliminary evidence regarding the effect of the supplementary information disclosure on information asymmetry among market participants as measured by bid–ask spreads. The results show that the disclosure of supplementary information of joint ventures is associated with a significant decline in bid–ask spreads. The results also indicate that the decline in information asymmetry is larger when the investment in joint ventures is significant and that larger investing firms tend to have a smaller decline in information asymmetry compared to smaller investing firms. The implications of this study, that the provision of supplementary information about joint ventures could reduce information asymmetry among participants in equity markets, thus leveling the playing field among traders, could have implications for policymakers.

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**Keywords:** Joint ventures; Information asymmetry; Accounting disclosures

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### 1. Introduction

In the United States, the accounting for investment in joint ventures is currently governed by the Accounting Principles Board [APB] (1971) Opinion No. 18, *The Equity Method of*

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*Accounting for Investments in Common Stock.* The Opinion requires an investor to use the equity method for reporting investments in corporate joint ventures (paragraph 16). However, there is no international consensus on basic aspects of accounting for joint venture interests.<sup>1</sup> The lack of comparability among financial statements caused by the diversity in accounting practice is a significant concern given that joint ventures have become a prevalent mode of entry into global markets.<sup>2</sup>

The rapid expansion of international trade and the accessibility of foreign capital markets have provided an impetus for harmonizing accounting standards across countries. The Financial Accounting Standards Board (FASB) has actively promoted greater comparability between U.S. Generally Accepted Accounting Principles (GAAP) and International Accounting Standards (IAS). Recently, an attempt was made to harmonize the various accounting methods used for joint ventures by the G4+1 (1999) through the issuance of a special report<sup>3</sup>—Financial Accounting Series (FAS) No. 201-E, *Reporting Interests in Joint Ventures and Similar Arrangements*. The report recommends the use of the equity method.<sup>4</sup> In addition, the report suggests that the supplementary information about joint ventures be disclosed in the financial statements of the investing firms. These disclosures include the investor's share of current and long-term assets, current and long-term liabilities, revenues and expenses by major components, net income before and after taxes, and cash flows from operating, investing, and financing activities.

Since 1995, the reporting for joint ventures in Singapore has been governed by the Statement of Accounting Standard (SAS) No. 29, which is equivalent to IAS No. 31. Under IAS No. 31 or SAS No. 29, venturers are required to report corporate joint ventures by either proportionate consolidation or equity accounting. Supplementary information about the share of revenues, expenses, assets, and liabilities of the joint ventures, as well as a description of the nature of joint venture activities, and the country where the joint ventures are situated must be disclosed regardless of the accounting method chosen. This supplementary information was not available to the public before the issuance of SAS No. 29 and is expected to provide investors with additional insights into the future profitability, cash flows,

<sup>1</sup> In Canada, proportionate consolidation is required for all joint ventures. The International Accounting Standards Committee [IASC] (1992) specifies that proportionate consolidation for joint ventures is its benchmark standard, but permits the use of the equity method as an allowed alternative. The Australian standard (AASB 1006) requires equity accounting for jointly controlled entities while joint venture operations that are not entities should be proportionately consolidated.

<sup>2</sup> For example, FAS No. 201-E reports that 965 of 6611 active U.S. enterprises with December 31 year-ends referred to joint ventures in their 1995 financial statements. Moreover, 92 out of 200 Canadian public enterprises reported interests in one or more joint ventures. In Australia, 95 out of 289 firms reviewed disclosed interest in one or more joint ventures (paragraph 1.5).

<sup>3</sup> The G4+1 (1999) consists of the Australian Accounting Standards Board, the Canadian Accounting Standards Board, the New Zealand Financial Reporting Standards Board, the U.K. Accounting Standards Board, the U.S. Financial Accounting Standards Board, and observation by the IASC (1992).

<sup>4</sup> Proportionate consolidation is not recommended as it is fundamentally inconsistent with the basic economic concept of assets. A venturer cannot control its pro rata share of individual assets in a joint venture.



and riskiness of the investing firm, especially where the joint ventures constitute a significant share of the investing firm.<sup>5</sup>

In this study, we examine the disclosure effect of a set of Singapore firms that provide supplementary information of joint ventures as recommended by FAS No. 201-E.<sup>6</sup> To our knowledge, there is no other empirical study on whether the disclosure of supplementary information of joint ventures provides information to market participants. Our findings on the usefulness of mandatory disclosure of supplementary information for joint ventures in an international context are timely and should serve as a valuable reference to standard setters.

Lev (1988) suggests that information asymmetry among market participants could cause high transaction costs, thin markets, and low liquidity. According to Verrecchia (1982), the disclosure of more finely partitioned data is expected to result in increased informedness about the value of the firm to investors. In our study, we investigate whether the disclosure of supplementary information of joint ventures mandated by IAS No. 31 or SAS No. 29 is associated with a decline in information asymmetry among market participants regarding the value of the investing firms. Prior research have used bid–ask spreads (Greenstein & Sami, 1994), trading volume (Bartov & Bodnar, 1996), and security price variability (Swaminathan, 1991) to measure information asymmetry. Greenstein and Sami (1994) and Swaminathan (1991) demonstrate that the disclosure of segment information due to the SEC's 1970 segment disclosure regulation is associated with a significant decline in bid–ask spreads and an increase in price variability. Similarly, the disclosure of present values of petroleum reserves is also related to a significant drop in bid–ask spreads (Boone, 1998; Raman & Tripathy, 1993).

This study allows us to determine whether the disclosure effect, so widely documented for U.S. firms, is an international phenomenon or is idiosyncratic to specific capital markets. The current study analyzes an increasingly influential capital market in which joint ventures play a critical role. Because Singapore is a small but open economy, international joint ventures represent an important method for new capital acquisition and business expansion. Recently, the government of Singapore has vigorously promoted the country as a gateway into the Asian economy for U.S., European, and other international firms.<sup>7</sup> Since it is at the crossroads of capital inflows from so many different investors, Singapore is an interesting market in which to study the economic consequences of adopting IAS No. 31.

<sup>5</sup> APB Opinion No. 18 also indicates that when the investments in common stock of corporate joint ventures are accounted for under the equity method, it may be necessary for summarized information about assets, liabilities, and results of operations of the investees, if material, to be disclosed in the financial statements (paragraph 20d). The disclosure of the supplementary information for joint ventures is mandatory in Singapore, whereas that in APB No. 18 and FAS No. 201-E is not so clear.

<sup>6</sup> An examination of U.S. data regarding the impact of the supplementary disclosure of joint ventures would necessitate the use of dated data of joint ventures in the late 1960s and early 1970s, since APB No. 18 became effective in 1971.

<sup>7</sup> In the recent 1999 Global Competitiveness Report conducted by the Geneva-based World Economic Forum (WEF), Singapore maintained top position as the world's most competitive economy for the fourth consecutive year since 1996 despite the currency turmoil that has hit the Asian region. Singapore's GDP per capita projected by WEF for the period 2000–2008 would be 5.02%, the fastest growing economy in the world (*The Straits Times*, July 14, 1999).

The results of our study indicate that firms that have disclosed supplementary information regarding the share of assets, liabilities, revenues, and expenses since the issuance of SAS No. 29 experience a significant decline in information asymmetry as evidenced by a decline in bid–ask spreads. Our results also indicate that the decline in information asymmetry associated with the disclosure of supplementary information is larger when the investment in joint ventures is significant and that larger investing firms tend to have a smaller decline in information asymmetry compared with smaller investing firms.

The remainder of the paper is organized as follows. In the next section, we provide an overview of the accounting and regulatory environment in Singapore. We discuss the development of hypotheses in Section 3. Section 4 describes the sample selection and research design while Section 5 analyzes and discusses the research results. The Section 6 contains our conclusion.

## 2. Accounting for joint ventures in Singapore

Prior to 1995, there was no specific accounting statement governing the reporting of corporate joint ventures in Singapore. Consequently, joint ventures that were incorporated before 1995 were consolidated by the investing firm if the ownership interest in the joint ventures is more than 50%.<sup>8</sup> On the other hand, if the ownership interest of the incorporated joint ventures is less than or equal to 50%, the ventures are equity accounted for by the firm.<sup>9</sup>

Both equity accounting and consolidation compresses all information about the joint venture into one line or several lines in the balance sheet and the income statement of the investing firms. Information is lost when the assets and liabilities are netted into an aggregate number (Eddey, 1995, p. 421; Whittred & Zimmer, 1992, pp. 364–366). As the size, number, and variety of investments in joint ventures increase, the loss of information in the financial statements due to equity accounting or consolidation could thus be significant.

The reporting of interests in joint ventures has been governed by SAS No. 29 since 1995. This standard introduced proportionate consolidation for jointly controlled ventures, thus better reflecting the substance and economic reality of a venturer's interest in a jointly controlled entity.<sup>10</sup> Though it is less preferred for reporting interests in corporate joint ventures, SAS No. 29 also allows the use of the equity method. This is an accommodation to

<sup>8</sup> In consolidation, the financial statements of the firm and its subsidiaries are combined on a line-by-line basis.

<sup>9</sup> The Singapore Accounting Standard requires that the investment in an associated company be equity accounted for in the consolidated accounts. Under the equity method, the investment is initially recorded at cost and adjusted thereafter for the postacquisition change in the investor's share of net assets of the investee. In consolidated accounts, the investor's share of the associated company's net assets will be shown in the consolidated balance sheet as a single item, "Investment in associated company." The investor's share of the associated company's profits or losses will also be shown in the consolidated profit and loss account as a single item, "Share of profit (loss) after tax of associated company."

<sup>10</sup> Proportionate consolidation is a method of accounting and reporting whereby a venturer's share of each of the assets, liabilities, income, and expenses of a jointly controlled entity is combined on a line-by-line basis with similar items in the venturer's financial statements.



those who argue that it is inappropriate to combine controlled items with jointly controlled items and those who believe that venturers have significant influence, rather than joint control, in a jointly controlled entity. Whether the firm chooses proportionate consolidation or equity accounting, SAS No. 29 requires the firm to disclose supplementary information such as share of assets, liabilities, revenues, and expenses of the joint ventures in the footnotes of the annual report. Hence, the same amount of information is disclosed regardless of the accounting method chosen.

### 3. Research hypotheses

#### 3.1. *Disclosure policy and information asymmetry*

Welker (1995) provides evidence that disclosure policy influences market liquidity, since uninformed investors “price-protect” against adverse selection, and this price protection is manifested in bid–ask spreads. The disclosure of supplementary information useful for assessing the viability and future prospects of joint ventures is expected to reduce information asymmetry among market participants and the bid–ask spread. The above discussion suggests the following hypothesis.

**Hypothesis 1.** Firms that disclose supplementary information for joint ventures after the issuance of SAS No. 29 will have lower bid–ask spreads compared to the bid–ask spreads before the issuance of SAS No. 29.

#### 3.2. *Size of joint ventures*

If the provision of supplementary information about joint ventures is associated with a reduction in information asymmetry, such a reduction is likely to be accentuated by the size of the joint ventures. The larger the investment in joint ventures, the greater the impact and the more material the actions of the joint venture transactions in the financial statements of the investing firm. Thus, the disclosure of material information about joint ventures in the financial statements available to market participants, in compliance with SAS No. 29, is likely to result in a larger decline in information asymmetry as measured by bid–ask spread than when the investment in joint ventures is less material. This leads to the following hypothesis.

**Hypothesis 2.** The larger the investment in joint ventures by firms, the greater the reduction in the bid–ask spreads.

#### 3.3. *Size of investing firms*

Greenstein and Sami (1994) argue that as securities of larger firms are traded more frequently, there should be more public information available for larger firms. In addition,

larger firms are followed by more analysts than smaller firms. Consequently, information asymmetry should be lower for these larger firms. The size of the firm is deemed a mitigating variable in the downward adjustment of the bid–ask spread when there is disclosure of new information. Diamond and Verrecchia's (1991) model suggests that the increase in expected liquidity for a unit improvement in disclosure is greater for higher initial levels of information asymmetry. Hence, smaller firms that have higher initial levels of information asymmetry should experience a greater decline in information asymmetry with the disclosure of supplementary information for joint ventures, while larger firms that have lower initial levels of information asymmetry should experience a smaller decline in information asymmetry. Based on the above discussion, the following hypothesis is formulated.

**Hypothesis 3.** Larger firms that disclose supplementary information for joint ventures after the issuance of SAS No. 29 will have lower declines in bid–ask spreads compared to smaller firms.

#### 4. Sample selection and research design

##### 4.1. Data

We select all firms that have joint ventures from the *Financial News*,<sup>11</sup> a daily publication of the Stock Exchange of Singapore (SES), and from the annual reports of listed firms. Table 1 shows a distribution of the firms. The firms are divided into three groups. Group 1 consists of 40 firms with joint ventures that do not provide supplementary information before the issuance of SAS No. 29 but disclose such information after SAS No. 29 is introduced.<sup>12</sup> We use Group 1 as the primary experimental group to examine the impact of SAS No. 29 on information asymmetry. Group 2 consists of 42 firms that have joint ventures but do not disclose supplementary information.<sup>13</sup> We use Group 2 to mitigate the concern that the results in experimental Group 1 are driven by events correlated to the use of joint ventures rather

<sup>11</sup> *Financial News* is a daily publication by the SES. All listed firms are required to disclose firms' corporate events to the SES on a daily basis. Upon receiving the news, the SES will publish the events in the forthcoming issue of the *Financial News*. Thus, *Financial News* covers all listed firms in Singapore and represents the most complete and reliable source for corporate events such as joint ventures.

<sup>12</sup> Two very large firms, Singapore Telecommunications and Singapore Airlines, are excluded as the empirical results might be biased by their sheer size.

<sup>13</sup> An interview with senior auditors of Big Five accounting firms revealed that nondisclosure is due to the immateriality of the investment in joint ventures. A separate analysis is conducted to examine firms' disclosure decisions for joint ventures. We examine the annual reports of firms that report joint ventures in the *Financial News* after 1995, when SAS No. 29 becomes operative. We find that investment size of the corporate joint ventures reported in the financial statements are generally larger than the investment size of joint ventures that are not reported in the financial statements. The findings lend some support to the idea that nondisclosure of joint ventures is due to the immateriality of investment in joint ventures.



Table 1  
Distribution of sample firms into groups

Group	Description	No. of firms
1	Joint venture firms that disclose supplementary information after the issuance of SAS No. 29	40
2	Joint venture firms that do not disclose supplementary information after the issuance of SAS No. 29	42
3	Firms that do not have joint ventures	40
Total		122

than the supplementary information disclosure of the joint venture as required by SAS No. 29.<sup>14</sup>

We examine the annual reports of the sample firms to ensure that the impact on information asymmetry is not due to changes in other accounting policies. We also review the *Financial News* to ensure that there are no unique events that might potentially affect the results for the primary experimental group. We do not find any accounting policy changes or unique events that might potentially confound the results. As it is impossible to control for all possibilities, we acknowledge that the inference of this study may partially be related to undetected confounding events or the acts of firms entering into joint ventures.<sup>15</sup>

SAS No. 7, *Accounting for Cash Flow Statements*, was issued at the same time as SAS No. 29. Prior to 1995, all firms were required to report the Statement of Changes in Financial Position. Since 1995, all firms listed on the SES have been required to prepare Cash Flow Statements. The information provided by the Cash Flow Statements is not expected to systematically distort our results. With SAS No. 7, the information that was previously disclosed in the Statement of Changes in Financial Position is now being reclassified and disclosed as cash flows from operating, investing, and financing activities

<sup>14</sup> Group 2 firms have joint ventures but do not disclose supplementary information of joint ventures. Group 2 firms can therefore serve as a control group to mitigate the concern for the self-selection bias issues mentioned in footnote 15 below. If the changes in bid–ask spreads are driven by events correlated to the use of joint ventures, such as increased voluntary disclosures arising from the need to access capital markets, and not due to the supplementary information disclosure of the joint venture as required by the accounting standard, we would expect the difference in bid–ask spread reduction between Group 1 and Group 2 firms to be not significant. The results, however, show a significant difference.

<sup>15</sup> The capital market effects observed in the study could be related to the overall expansion strategy of the firm and increased voluntary disclosures could arise due to the need to access capital markets. The changes in bid–ask spreads could thus be due to these events correlated to the use of joint ventures rather than the supplementary information disclosure required by the accounting standard for joint ventures. In order to mitigate this concern, we examined annual reports of the sample firms to ensure that the impact on information asymmetry during the event period is not due to changes in other accounting policies. We also reviewed the *Financial News* to ensure that there were no unique events during the event period that might potentially affect the results for the primary experimental group. Typical announcements being made by all sample firms include dividend and earnings announcements. Since these announcements are common across all firms, they should not systematically affect information asymmetry in our study.

in the Cash Flow Statements. Since SAS No. 7 applies to all firms, the effect is expected to be uniform across all sample firms. However, to ensure that our results are not driven by the disclosure of additional cash flows information, we include firms that are listed on the SES but do not have joint ventures (Group 3). Firms in Group 3 (the control group) are matched with firms in Group 1 (experimental) by industry, market capitalization, and same corresponding year. The required data on bid–ask spreads and other financial data are obtained from the SES.

Descriptive statistics of firms that disclose supplementary information of joint ventures in the annual reports are reported in Table 2. Panel A shows the distribution of the firms by industry. Panel C indicates that joint ventures on average contribute 9.2% of current assets, 12.97% of fixed assets, 10.61% of current liabilities, 25.11% of long-term liabilities, and 13.72% of sales revenues of the investing firms. The mean contribution of profitable joint ventures to overall investing firms' profitability is at a sizable 15%, and investing firms' overall profitability declined by 5% due to loss-making joint ventures (Panel D). On average, the joint ventures' contribution to the investing firms' assets, liabilities, and profitability is not immaterial. Thus, the additional information, required under SAS No. 29, could be useful in assessing the investing firms' future profitability, cash flows, and riskiness.

#### 4.2. Method

The event date is defined as the date stamped on the annual reports of sample firms by the SES.<sup>16</sup> This is the earliest date that the information contained in financial statements becomes publicly available. Following Greenstein and Sami (1994), we employ time-series intervention analysis to examine changes in bid–ask spreads. The entire time-series length is 104 weeks: 52 in the pre-event and 52 in the post-event period. As in the Greenstein and Sami study, Wednesday data of each week are used. The relative bid–ask spread is measured as the difference between the ask and bid prices divided by the average share price (Greenstein & Sami, 1994).

Prior research has shown that trading volume and variability in price are related to bid–ask spreads.<sup>17</sup> As a result, an appropriate white noise model is first obtained for each firm in the pre-event period. The model is then run for the entire 104 weeks with an intervention component ( $I_t$ ) and two variables, LVOL and PRVAR (defined below) that control for trading volume and price variability. Similar to Greenstein and Sami (1994), we measure price variability as the standard deviation of the weekly prices after adjustment for stock dividends,

<sup>16</sup> Three of the treatment sample firms that had joint ventures in 1994 and before did not comply in 1995 but did so in 1996. Control Group 3 firms are matched with experimental Group 1 firms by industry, market capitalization, and the same corresponding year. This removes the concern of event dates falling in different time periods for the treatment and control samples, driving the results. Control Group 2 firms had a 1995 event date, since the joint ventures were entered into in 1994 and before.

<sup>17</sup> For example, see Benston and Hagerman (1974); Copeland and Galai (1983); Demsetz (1968); and Ho and Stoll (1981).



Table 2

Descriptive statistics of Group 1 firms that disclose supplementary information of joint ventures

## Panel A: Industry classification of firms that disclosed supplementary information about joint ventures

Construction	9
Manufacturing	8
Multi-industry	6
Transport/storage/ communication	6
Property	5
Commerce	4
Hotels/restaurants	2
Total	40

## Panel B: Descriptive statistics of the supplementary information about joint ventures (in S\$'000)

	Current assets	Fixed assets	Current liabilities	Long-term liabilities	Sales revenues
Mean (S.D.)	29,392 (37,288)	45,212 (75,560)	19,401 (27,406)	40,632 (51,233)	52,985 (95,010)
Median	12,601	6753	6345	19,029	15,914

## Panel C: Percentage of the assets, liabilities and sales revenues of the joint ventures relative to the investing firms

	Current assets	Fixed assets	Current liabilities	Long-term liabilities	Sales revenues
Mean [%] (S.D.)	9.20 (0.1200)	12.97 (0.2154)	10.61 (0.1902)	25.11 (0.3358)	13.72 (0.2038)
Median [%]	4.79	3.26	3.65	12.23	3.86

Panel D: Profitability of the joint ventures<sup>a</sup>

	Profitable joint ventures (in S\$'000)	Nonprofitable joint ventures (in S\$'000)	Percentage contribution of profitable joint ventures to overall profitability of the investing firm	Percentage decline in overall profitability of the firm due to nonprofitable joint ventures
Number	18	13	17	13
Mean profit (S.D.)	5070 (7020)	– 5491 (16,539)	15.24% (0.2055)	– 5.20% (0.0689)
Median profit	2037	– 146	6.50%	– 1.16%

<sup>a</sup> Total number of firms that report joint ventures' profitability is 31. The other nine firms have not started operations and therefore profits are not reported. Of these 31 firms, 30 report an overall positive net income.

stock splits, and trading volume as the weekly average number of shares traded in the SES. The full model is given below:

$$Y_{it} = \text{TSM}_i + wI_{it} + \beta_1 \text{LVOL}_{it} + \beta_2 \text{PRVAR}_{it} + \varepsilon_{it} \quad (1)$$

where:  $Y_{it}$  = weekly relative spread for firm  $i$  at time  $t$ ;  $TSM_i$  = vector of coefficients of time-series for firm  $i$ ;  $I_{it}$  = the intervention component for firm  $i$  at time  $t$ , with 0 representing the pre-event period and 1 representing the post-event period;  $LVOL_{it}$  = natural log of average weekly trading volume for firm  $i$  at time  $t$ ;<sup>18</sup>  $PRVAR_{it}$  = weekly price variability for firm  $i$  at time  $t$ ; and  $\varepsilon_{it}$  = white noise for firm  $i$  at time  $t$ .

The intervention component,  $I_{it}$ , is the primary concern in testing the hypotheses. A negative coefficient of  $w$  indicates a drop in bid–ask spread while a positive sign indicates an increase in the spread from the pre- to post-event period.

Cross-sectional OLS regressions are then run to test Hypotheses 2 and 3. The independent variables are size of joint ventures (SJV), firm size (FSIZE), and two control variables, percentage change in price from pre- to post-event period (CHPRICE) and percentage change in market capitalization from pre- to post-event period (CHFSIZE). As in Greenstein and Sami (1994, p. 187), CHPRICE is included as a control variable to assess whether changes in the denominator of the relative spread contribute to the changes found in the intervention analysis. CHFSIZE is included to control for changes in firm size that may affect the bid–ask spreads. The measurement of these independent variables is defined below. The dependent variable  $\omega$  is the shift parameter of the time-series intervention analysis ( $w$ ) adjusted for the standard error of that estimate. To interpret the estimated coefficients more easily, the dependent variable is first multiplied by  $-1$ . A positive  $\omega$  indicates a decline in spread and vice versa. The following model is analyzed:

$$\omega = \alpha + \gamma_1 SJV + \gamma_2 FSIZE + \gamma_3 CHPRICE + \gamma_4 CHFSIZE + \varepsilon \quad (2)$$

where:  $\omega$  = estimated regression coefficient from intervention analysis deflated by the standard error of the estimate multiplied by  $-1$ ; SJV = total assets of joint ventures relative to total assets of the investing firm; FSIZE = natural logarithm of market capitalization of the investing firm;<sup>19</sup> CHPRICE = percentage change in average daily price from the pre- to post-event period; CHFSIZE = percentage change in market capitalization reported in the annual report one year before the disclosure of supplementary information to the year of disclosure.

## 5. Results

### 5.1. Changes in bid–ask spread

Table 3 reports the descriptive statistics of the time-series intervention analysis. Panel A describes the characteristics of the three groups of firms in terms of firm size,  $\beta$ , profitability, and capital structure. ANOVA tests are conducted to determine whether differences among

<sup>18</sup> Log transformation is used due to nonnormality of the volume data.

<sup>19</sup> Log transformation is used due to nonnormality of the market capitalization data.



Table 3  
Descriptive statistics of the time-series intervention analysis

Number of firms	Group 1	Group 2	Group 3	ANOVA <i>Pr &gt; F</i>
	40	42	40	
<i>Panel A: Characteristics of the sample firms</i>				
Market capitalization: (in S\$ millions)				
Mean	888.78	511.85	917.08	0.580
Median	307	257	341.5	
S.D.	1524	1041	1535	
Firm's $\beta$				
Mean	1.27	1.22	1.11	0.269
Median	1.37	1.17	1.12	
S.D.	0.53	0.42	0.37	
Returns on assets (%)				
Mean	5.57	3.15	5.68	0.110
Median	4.38	4.28	3.70	
S.D.	3.48	6.77	7.31	
Long-term debt–equity ratio (%)				
Mean	56.26	65.04	24.72	0.434
Median	36.4	22.99	8.19	
S.D.	72.36	235.98	35.74	
<i>Panel B: Comparison of pre- vs. post-event relative spreads</i>				
Mean pre-event relative spreads (S.D.)	0.0358 (0.3574)	0.0373 (0.1958)	0.0356 (0.4001)	
Mean post-event relative spreads (S.D.)	0.0234 (0.1487)	0.0320 (0.1848)	0.0336 (0.1554)	
Median pre-event relative spreads	0.0190	0.0189	0.0192	
Median post-event relative spreads	0.0106	0.0171	0.0179	
Percentage change in mean (S.D.)	– 24.60 (37.10)	– 12.14 (44.35)	– 5.88 (35.12)	
Percentage change in median	– 29.11	– 10.37	– 6.75	

groups exist with respect to these variables. We find that firms in the control groups are not significantly different from the experimental firms.

Descriptive statistics for the mean and median pre- and post-event overall relative spreads for each group is presented in Panel B of Table 3. The mean and median relative spread shifts downward from the pre- to post-disclosure period for all three groups. At the individual firm level, the means of the relative bid–ask spreads are calculated for the pre- and post-disclosure periods. The percentage changes in mean are then computed from pre- to post-disclosure for each firm. The mean, median, and standard deviation of the distribution of the percentage changes in spreads at the firm level are reported in Panel B. As expected, those firms that disclose supplementary information for joint ventures after the issuance of SAS No. 29

experience the largest decline in spreads (24.60%). The decline in average mean spreads for Groups 2 and 3 is less at 12.14% and 5.88%, respectively. The decline in the median relative spreads also exhibits a similar pattern.

Table 4 provides the results of the time-series intervention analysis. Panel A shows that 30% of the identified models required adjustment to meet serial independence and stationarity assumptions.<sup>20</sup> Panel B shows that the proportion of all sample firms that have significant negative LVOL is greater than 60%, while the proportion of all sample firms that have significant positive PVAR is 25%.

Panel C presents the descriptive statistics of the frequency of significant shifts at 0.10 or better (one-tailed test) for the intervention component,  $I_{it}$ . On average, the shift is downward for all the three groups. The decline in relative spreads is 6.01% for Group 1 firms, 1.92% for Group 2 firms, and 2.44% for Group 3 firms. These results provide some support for the claim that the disclosure of supplementary information by Group 1 firms, after the issuance of SAS No. 29, is associated with a larger decline in information asymmetry as measured by bid-ask spreads.

The results of the ANOVA test, which are reported in Panel D of Table 4, show that there is a significant difference in the decline in mean shifts among the three groups ( $p$ -value 0.03). The mean decline in spreads for firms of Group 1 is statistically larger than the mean decline in spreads for firms of Groups 2 and 3. This evidence suggests that the decline in the bid-ask spread in the experimental group is associated with new information of joint ventures being disclosed and the decline is unlikely to be driven by the disclosure of cash flow data or other factors.<sup>21</sup>

## 5.2. Regression results

We run OLS regressions to investigate whether the size of joint ventures and investing firms are related to the downward shift in information asymmetry. The descriptive statistics, Pearson correlation coefficients for the explanatory variables, and the results of the OLS regressions are presented in Table 5.

The dependent variable for the regression is the change in spread ( $\omega$ ). SJV is statistically significant and the sign is positive as expected. The evidence suggests that when the investment in joint ventures is significant, disclosing information about the ventures in the

<sup>20</sup> A series of diagnostic checks is performed using the estimated autocorrelation and partial autocorrelation functions. The appropriate ARIMA structure is selected using the rule of parsimony. The  $Q$  statistic fails to reject the null hypothesis that the error term is serially uncorrelated.

<sup>21</sup> Since Groups 1 and 2 firms have joint ventures, there is a need to show that the decline in bid-ask spread is greater for Group 1 than Group 2 firms so that we can attribute the significantly greater decline in Group 1 firms to the supplementary disclosure of joint venture information as required by SAS No. 29, and not to events correlated to the use of joint ventures as mentioned in footnote 15 above. All firms need to provide cash flow statements, so both Groups 1 and 3 firms should have a decline in bid-ask spreads due to the additional cash-flow information disclosed. To show that the decline in bid-ask spread is due to the disclosure of supplementary information on joint ventures, Group 1 firms need to have a significantly larger decline in spread.



Table 4

## Time-series intervention analysis

## Panel A: Time-series models identified

ARIMA ( $p,d,q$ ) <sup>a</sup>	Group 1	Group 2	Group 3
No corrections	32	27	27
$pdq(0,1,1)$	2	3	2
$pdq(0,0,1)$	0	0	3
$pdq(1,0,0)$	2	2	3
$pdq(1,0,1)$	4	7	2
$pdq(1,1,0)$	0	2	2
$pdq(1,1,1)$	0	0	1
$pdq(2,1,0)$	0	1	0
Total	40	42	40

## Panel B: Number of firms with significant coefficients \*

ARIMA ( $p,d,q$ ) <sup>a</sup>	Group 1	Group 2	Group 3
LVOL with significant negative coefficient	25 (63%)	28 (67%)	25 (63%)
PVAR with significant positive coefficient	10 (25%)	6 (14%)	11 (28%)

## Panel C: Number of firms with significant shift \*

Significant shift	32 (80%)	17 (40%)	15 (38%)
Significant negative shift	26 (65%)	9 (21%)	11 (28%)
Mean shift (S.D.)	-0.0601 (0.1375)	-0.0192 (0.0525)	-0.0244 (0.1054)

Panel D: ANOVA test and pairwise test of mean shifts ( $F=3.549$ ,  $P=.032$ )

ANOVA test of mean shifts	Student's $t$ test		Mann-Whitney $U$ test	
	$t$ value	$P$ (one-tailed)	$z$ value	$P$ (one-tailed)
Group 1 vs. Group 2	1.74	0.04	2.67	0.00
Group 1 vs. Group 3	1.77	0.04	2.20	0.01
Group 2 vs. Group 3	0.22	0.41	0.23	0.46

Please refer to Eq. (1).

<sup>a</sup> ARIMA ( $p,d,q$ ) is an autoregressive integrated moving average time series, where  $p$  denotes the number of autoregressive terms,  $d$  the number of times the series has to be differenced before it becomes stationary, and  $q$  the number of moving average terms.

\* Statistically significant at the 10% level (one-tailed).

financial statements provide more useful information to the users than when the investment is less significant. FSIZE has the expected negative sign and is statistically significant. The result is consistent with the prediction that larger firms that disclose supplementary information of joint ventures after the issuance of SAS No. 29 have a lower decline in bid-ask spreads than that of smaller firms. The two control variables, CHPRICE and CHFSIZE, are not statistically significant. Overall, the results reported in Table 5 render some support for Hypotheses 2 and 3.

Table 5  
Results of the OLS regression

Panel A: Descriptive statistics of the explanatory variables in the OLS regression

Variable	Mean	Median	Maximum	Minimum	S.D.
SJV	0.06	0.03	0.20	0.00	0.06
FSIZE	12.74	12.66	15.83	10.17	1.40
CHPRICE	0.01	0.04	0.96	−0.63	0.30
CHFSIZE	0.16	0.11	1.17	−0.22	0.25

Panel B: Pearson correlation coefficients

	SJV	FSIZE	CHPRICE	CHFSIZE
SJV		−0.116	0.128	0.247
FSIZE			−0.188	0.006
CHPRICE				0.225

Panel C: Coefficient estimates (*t* statistics are in parentheses)

Variables (exp. sign)	Dependent variable ( $\omega$ )
SJV (+)	8.210 * (1.71)
FSIZE (−)	−0.366 * (−1.76)
CHPRICE	−0.283 (−0.25)
CHFSIZE	1.745 (0.29)
Constant	4.774 **
<i>N</i>	40
Adjusted <i>R</i> <sup>2</sup>	0.14
Model <i>F</i>	2.54

$\omega$  = estimated regression coefficient from intervention analysis deflated by the standard error of the estimate multiplied by −1; SJV = total assets of joint ventures relative to total assets of the investing firm; FSIZE = natural logarithm of market capitalization of the investing firm; CHPRICE = percentage change in average daily price from the pre- to post-event period; CHFSIZE = percentage change in market capitalization reported in the annual reports one year before the disclosure of supplementary information to the year of disclosure.

- \* Statistically significant at the 5% level (one-tailed).
- \*\* Statistically significant at the 10% level (two-tailed).

### 5.3. Additional analyses

We address concerns that the decline in bid–ask spreads discussed in Table 4 may reflect the existence of joint ventures and not the disclosure of supplementary information. As stated in the Method section, the event date used in our study is the date of the SES stamp on annual reports of sample firms. Also as previously discussed, the pre-event period is 52 weeks before the event date and the post-event period is 52 weeks after the event date. The decline in bid–ask spread (from the pre- to post-event period) due to disclosure of supplementary information of joint ventures could potentially be confounded by the act of entering into the joint venture (if the joint venture is entered into) during the event period of 104 weeks. We examine each of the 40 firms in the experimental Group 1 that have disclosures after SAS 29. There are nine firms that entered into joint ventures during



the event period. We removed these nine firms and reestimated Eq. (1) for the intervention analysis. The results remain qualitatively unchanged. This additional analysis mitigates the concern that entering into the joint venture during the event period might be a confounding factor driving the results.

We perform a series of tests to ensure that the length of the pre- and post-event periods in the time-series intervention analysis as well as changes in the bid–ask spreads in the pre-event periods do not drive our results. Following Greenstein and Sami (1994), we conduct the same intervention analysis for a shorter period, 26 weeks for the pre- and 26 weeks for the post-event periods. Qualitatively similar results are obtained. We also conduct the intervention analysis using a dummy event period to detect whether there are systematic changes in bid–ask spreads in the pre-event periods. The first 26 weeks are treated as a pre-event period, while the next 26 weeks are treated as a post-event period. The results indicate that there is no systematic change in the bid–ask spreads over the first 52 weeks. These results, in conjunction with the use of the control groups in the research design, are consistent with the inferences that the joint venture disclosures are associated with the decline of relative bid–ask spreads.<sup>22</sup>

We divide Group 1 into two equal subgroups of 20 firms each, according to accounting method: (a) proportionate consolidation and (b) equity method with supplementary information on joint ventures. The decline in bid–ask spreads is significant ( $t$  value of 2.1) for firms that report joint ventures using equity method with supplementary disclosure. This evidence provides some preliminary support for the use of equity method supplemented with additional disclosure of joint ventures proposed by FAS No. 201-E. For firms using proportionate consolidation, the decline in bid–ask spreads is also significant ( $t$  statistic value of 2.1).<sup>23</sup>

We employ the one-sample Kolmogorov–Smirnov Test to examine whether the variables in the regression Eq. (2) are normally distributed, a necessary assumption under the OLS regression. We cannot reject the null hypothesis that the distribution is normal for all variables used in Eq. (2). The residuals of the regression model follow a white noise process and the Durbin–Watson Test (DW statistic 2.26) indicates that there is no serial correlation problem. Both the variance inflation factor and the tolerance value for each variable are close to one. Hence, multicollinearity problems do not seem to be a major threat. These evidences reduce the concern that the model in Eq. (2) might be misspecified.

We employ a dummy variable to proxy for different accounting methods in the regression analysis (Table 5) to investigate whether different accounting methods are related to different patterns of the decline in bid–ask spread. The results (not reported) indicate that the decline

<sup>22</sup> We also examine the impact of mandatory SAS No. 29 on information asymmetry by comparing changes in trading volume and price variability among the three sample groups. Prior research suggests that these variables are also proxies for information asymmetry (e.g., Bartov & Bodnar, 1996; Swaminathan, 1991). Overall, the patterns of changes in trading volume and price variability from the pre- to post-event periods are consistent with the pattern of changes in bid–ask spread reported in Table 4.

<sup>23</sup> There is no significant difference in the changes in bid–ask spreads between firms using equity accounting and proportionate consolidation for joint ventures.

in information asymmetry is unrelated to the accounting method used as long as the joint venture information is disclosed in the financial statements.

To check for robustness of our results, we use share of revenues of joint ventures relative to total revenues of the investing firm as another measure for size of joint ventures (SJV). We also use owners' equity (as in Greenstein & Sami, 1994) to measure firm size (FSIZE). The use of alternative measures for SJV and FSIZE do not change our results qualitatively.

## 6. Conclusion

This study examines the impact of the disclosure of supplementary information for joint ventures on information asymmetry among market participants as measured by relative bid–ask spreads. The results show that the disclosure of supplementary information for joint ventures is associated with a significant decline in bid–ask spreads. This decline in information asymmetry is larger when the investment in joint ventures is significant. Larger investing firms tend to have a smaller decline in information asymmetry compared to smaller investing firms. The implication of this study to policymakers is that the provision of supplementary information about joint ventures could reduce information asymmetry and has the potential to level the playing field among participants in the equity market. These conclusions should be of interest to standard setters who have recently changed reporting requirements and are discussing harmonization of financial reporting for joint ventures.

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## Quality of financial reporting: evidence from the listed Saudi nonfinancial companies

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### Abstract

This study assesses the quality of information disclosed by a sample of nonfinancial Saudi companies listed on the Saudi Stock Exchange. The study also compares the extent of corporate disclosure before and after the creation of the Saudi Organization of Certified Public Accountants (SOCPA). We classify information disclosed in the annual reports into three main categories: mandatory; voluntary related to mandatory; and voluntary unrelated to mandatory disclosure. The sample provided 63% and 66% of the total population of companies listed on the Saudi Stock Exchange in the years 1992 and 1999.

In departure from most previous studies conducted in this area of research, we weighted the indexes of disclosure by the mean and median responses of seven users of the annual reports in Saudi Arabia. The results of both unweighted and weighted indexes are reported. The outcome of the analysis indicated a relatively high compliance with the mandatory requirements in all industries covered by the study, with the exception of the electricity sector. As for the voluntary disclosure, whether related or unrelated to mandatory disclosure, the analysis revealed that Saudi companies disclose information more than the minimum required by law. The level of voluntary disclosure, however, is relatively low. The analysis also showed that the creation of SOCPA has had little impact on corporate reporting in Saudi Arabia.

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## 1. Introduction

After two Gulf Wars and continued fluctuations in oil prices, Saudi Arabia and other Gulf States started to experience budgetary deficits. This reality coincided with a revolution in information technology that abolished borders between countries and emphasized globalization. Because of these developments, policymakers in Saudi Arabia realized the importance of restructuring their economy to be able to compete in the international arena. Consequently, during the 1990s, Saudi Arabia underwent liberalization and privatization programs aimed at reducing government expenditure and inviting the private sector to take a more effective part in shaping the national economy (Naser, 1998). In fact, Saudi authorities introduced a number of measures as a clear indication of their intention to transform the economy. During the 1990s, Saudi authorities issued government bonds to finance their activities and borrowed from the banking sector to cover the budgetary deficit. In April 2000, the Saudi government issued a law that allowed foreign investors, for the first time, to invest in Saudi Arabia. The new law gives tax incentives to foreign investors and, according to the Saudi Finance and Economics Minister, a corporate tax rate on foreign investment that does not exceed 30% of the reported income.<sup>1</sup> The minister also indicated that the corporate income tax rate would be 25% on companies that reported  $\leq 100,000$  Saudi riyals (SR). Foreign companies will be given an unlimited period to write off their losses.<sup>2</sup> More importantly, the Saudi Finance Minister emphasized that Saudi Arabia will undergo an improvement in the accounting and auditing systems that involve the Department of Zakat and Income Tax authorities.

Central to the abovementioned developments are the annual reports published by companies operating in Saudi Arabia. These published reports are the main vehicle firms use to communicate information to external users. Given that the report contains information on a firm's profitability and liquidity, it is expected to help investors, creditors, and other users make informed decisions about the company. Unlike companies operating in the developed world, the annual report published by a Saudi company represents the only source of financial information available to users.<sup>3</sup>

In this study, an attempt is made to assess the quality of information disclosed by nonfinancial companies listed on the Saudi Stock Exchange. In particular, the study examines the extent to which Saudi firms comply with stated accounting measurement and disclosure requirements. The first Saudi national accounting body was formed in 1992, at which time company disclosure requirements became effective. Until now, no attempt has been made to assess changes in the quality of accounting measurement and disclosure reported by the Saudi companies.

<sup>1</sup> Ibrahim al-Asaf said that "30% the taxation limit to tax on foreign investment and flexibility will be given to write off losses" (*Asharq Al-Awsat*, April 12, 2000, Wednesday [7806] p. 11).

<sup>2</sup> This new law will replace a previous one that permits a company to write off sustained losses 1 year after their occurrence.

<sup>3</sup> In a developing country like Saudi Arabia, investors or creditors can get information from the company through direct contact with the management. Yet, the annual report is still the only formal source of information published by the company.



The timeliness of this study lends to its importance. It comes a few years after the creation of the Saudi Organization of Certified Public Accountants (SOCPA) in 1993 and shortly after the Saudi authorities passed a new foreign investment law in which accounting information plays a significant role in assuring local, as well as foreign, investors. We expect this study to shed light on SOCPA's impact on the extent of disclosure by national companies. Our results have the potential to assist Saudi policymakers as they develop the requirements of financial reporting. In addition, it will offer both local and foreign investors an objective assessment of the current reporting practices in Saudi Arabia. Such information is important to all investors who want to make informed decisions before they invest in a company.

The remainder of the study proceeds as follows. The framework for financial reporting in Saudi Arabia is presented in the next section. Previous studies that covered the quality of corporate disclosure are reviewed in Section 3. Research questions, data collection, statistical tests, and index construction are all presented in Section 4. The findings are detailed in Section 5 and the conclusion is given in the final section.

## 2. The framework for financial reporting in Saudi Arabia

Accounting practices in Saudi Arabia are regulated by three laws: the Company Law, Accountancy Law, and Income Tax and Zakat Law. None of these laws define the scope, function, or objectives of accounting or financial reporting.

The *Company Law*, the primary authoritative reference for professional accounting practice, includes some accounting guidelines. It determines the legal basis for companies and accountants and its articles deal with the fundamental details of formation, such as registration procedures, minimum capital required number of partners, number of directors, and other related matters. Article 38, for example, asks the board of directors to prepare a balance sheet for every financial year, a profit and loss account, and a report on the company's operations and financial position. It also provides some guidance on auditing and accounting measurement and procedures.<sup>4</sup>

The *Accountancy Law* was enacted by Royal Decree No. 43 (1974) and was the first to regulate the accounting profession in Saudi Arabia. It is still in effect and sets the standards that should be followed by auditors. It consists of 35 articles, which establish the fundamental requirements of practicing accounting services such as registration procedures and fees, qualifications, the responsibilities of the auditor, violation and trial proceedings, and other related issues.

During the past decade, the Ministry of Commerce realized there was an urgent need to update the 1974 Accountancy Law. Accordingly, a new law was enacted by Royal Decree

<sup>4</sup> Private as well as publicly owned companies are expected to comply with the Company Law. Hence, it is very likely for privately owned companies to publish an annual report to assist the DZIT in estimating the amount of Zakat that the company should pay. In addition, the private company needs to produce accounts when applying for bank loans. Yet, the accounts produced by the privately owned companies are not as regular and intensive as those produced by the publicly owned companies.

Number 12/M on 13.5.1412 H (1991). This law comprises the following: conditions for registration, registration procedures, the obligations of a chartered accountant, and the establishment of the Saudi Public Accountants' Committee.

The *Income Tax and Zakat Law* was first introduced in Saudi Arabia by Royal Decree No. 17/2/28/3321, dated 21.1.1370H (1950), and has been amended several times. Zakat is a religious duty (tax), in accordance with Islamic Law, charged to Saudi citizens, wholly Saudi-owned companies, and the Saudi portion of profit of companies owned jointly with foreigners. The Zakat is imposed on capital and earnings: all profits, gains, and proceeds from business, industry acquisitions of whatever kind or description, including financial and commercial transactions, and dividends, crops, and livestock.

### *2.1. The accounting profession*

The first accounting firm, the non-Saudi firm of Saba, Nawar, and Co., was established in Saudi Arabia in 1955. The first Saudi accounting firm, Daghestani and Abdul Wahab, was established in 1959. By the end of the 1950s, there were still only seven accounting firms in Saudi Arabia.

### *2.2. The Ministry of Commerce*

Financial accounting objectives and concepts approved as the basis for financial accounting principles by Ministry of Commerce Decision No. 692 (1985) are very similar to the accounting principles issued by FASB. In 1986, the Ministry of Commerce issued "Accounting Objectives and Concepts," which dealt with three issues, namely financial accounting and objectives, financial accounting concepts, and the standard of general presentation and disclosure.

In addition, the Ministry of Commerce issued its "Auditing Standards," comprising seven standards, which are as follows: adequate professional competence, auditor neutrality and independence, due professional care, auditing planning, documentation and control, auditing evidence, and auditing reports.

In 1990, the first accounting standard on the objective and concepts of accounting and general presentation and disclosure was issued.<sup>5</sup> This was followed, in 1992, by the formation of SOCPA.<sup>6</sup> The organization has the responsibility of issuing accounting and auditing standards and has the authority to qualify public accountants.

<sup>5</sup> The standard became effective that same year.

<sup>6</sup> While the Company Act sets the basic rules and guides for accounting and auditing, SOCPA develops, reviews, and approves detailed accounting and auditing standards. SOCPA affairs are managed by 13 board members and chaired by the Minister of Commerce. The following serve as members: the Deputy Minister of Commerce and Deputy Minister of Finance, the vice president of the General Controller's Bureau, two representing accounting faculties of Saudi universities, a representative from the Council of Chambers of Commerce and Industry, and six members representing Saudi audit firms to be elected at the organization's general meeting for a term of 3 years.



In addition to the Company Law and the standard issued by SOCPA, companies listed on the stock exchange should meet the requirements set by the market.<sup>7</sup>

### 3. Previous research and study questions

In the literature, a number of studies have been undertaken to assess the degree of firms' compliance with the stated standards and to explain variations in the extent of corporate reporting. In this respect, Evans and Taylor (1982) investigated the impact of IASC on corporate reporting practices of five industrial countries (France, Germany, Japan, United Kingdom, and United States). They observed that the International Accounting Standards (IASs) have little impact on the extent of corporate disclosure. Ahmed and Nicholls (1994) investigated factors that influence the level of compliance by Bangladeshi companies with mandatory disclosure requirements. They found that mandatory disclosure tends to increase in cases where the company is a subsidiary of a multinational company (the company is audited by a large audit firm) and the accounts are prepared by a qualified accountant. They found, however, that company size has no effect on the level of disclosure. In a similar line of research, Murphy (1999) looked at specific firm features distinguishing Swiss firms who voluntarily adopted the IASs from other companies that chose to use national accounting standards. He found that a firm's involvement in foreign activities, percentage of foreign sales, and foreign stock exchange listing impact the use of the IASs.

El-Gazzar, Finn, and Jacob (1999) examined the reasons and company characteristics that influence a company's choice in adopting the IASs. They found that multiple foreign stock exchanges listing, the magnitude of a firm's foreign operations, and membership in regional organizations (European Union) dictate the use of the IASs. Tower, Hancock, and Taplin (1999) conducted a regional study that investigates the degree of compliance with the IASs of companies listed on the stock exchanges of six countries in the Asia-Pacific region. They found that the mean of compliance in countries like Australia, Thailand, Malaysia, and Singapore was 90% or more. The degree of compliance of other countries covered by a study by Tower et al. reported a slightly lower mean (88% and 89%). Given that Hong Kong and the Philippines are influenced by British and American accounting standards, respectively, the resulting mean of compliance with the IASs is encouraging.

<sup>7</sup> In 1984, the Saudi Arabian Monetary Agency (SAMA) took control of the capital market in Saudi Arabia and became the legislative body that regulates general and operational rules. SAMA circulated the rules and regulations controlling and supervising the Saudi Stock Exchange to commercial banks, responsible for all share-trading activities. The stock market requirements emphasize the requirements set in the Company Law and the accounting standards issued by SOCPA.

On the other hand, Dye (1986) indicated that the lack of voluntary disclosure might result in an increase in the demand for additional information through mandatory disclosure. This might lead to a positive association between the extent of mandatory and voluntary disclosures. It is therefore important to seek answers to the following research questions.

Research question 1: To what extent do Saudi companies comply with the requirements of mandatory disclosure?

Research question 2: Do Saudi companies disclose information more than the minimum required by accounting standards?

Research question 3: Is there any association between the extent of mandatory disclosure and voluntary related/unrelated to mandatory disclosure?

Research question 4: Is there any significant difference in the extent of corporate disclosure before and after the creation of the SOCPA?

#### **4. Index construction, data collection, and statistical tests**

##### *4.1. Index construction*

For the purpose of this study, corporate disclosure was put in three major areas: mandatory, voluntary closely associated with mandatory, and voluntary unrelated to mandatory. A disclosure index was constructed for each of these areas taking into consideration financial reporting requirements in Saudi Arabia.<sup>8</sup> The literature on the use of indexes was divided between unweighted and weighted indexes. Under the unweighted index, dichotomous scores, where 0 is given for nondisclosure and 1 is given for disclosure item, are used. The weighted index, however, is based on the rank a user of the annual report attaches to the information disclosure item. Those who advocate the use of the weighted index believe that such a score reflects both the extent and importance of each disclosure item that forms the index (Robbins & Austin, 1986). However, those who argue against the use of the weighted index contend that the weighting does not significantly alter the results (Chow & Wong-Boren, 1987; Wallace & Naser, 1995). In all cases, Chow and Wong-Boren (1987) and Robbins and Austin (1986) obtained the same results under the unweighted and weighted indexes.

In this study, the analysis is based on both methods. This helps assess the outcome under the two methods and provides new evidence from a developing country such as Saudi Arabia. In departure from previous studies (Chow & Wong-Boren, 1987; Robbins & Austin, 1986; Singhvi & Desai, 1971), which relied on a limited number of accounting information users, the disclosure index is weighted by the importance given to each item of disclosure by seven

<sup>8</sup> Details of the disclosure items included in the index and the weight given to each of the disclosure items by various users of corporate report are reported in Appendix A.



user groups.<sup>9</sup> This procedure is expected to give a more objective index. Five weighting points were given to items viewed as very important by the respondents; four points for those viewed as important, two points for some importance, and one point for little importance. The disclosure index scored by each company was then divided on the maximum score. This can be presented mathematically as follows:

$$UI_x = \left[ \sum_{t=1}^{n_x} T_{tx} \right] / n_x$$

where  $UI_x$  is the unweighted index scored by company,  $x$ ,  $0 \leq I_x \leq 1$ ;  $T_{tx}$  is the information item disclosed by company  $x$ ;  $n_x$  is the maximum number of items expected to be disclosed by a company;

$$WI_x = \left[ \sum_{t=1}^{n_x} wT_{tx} \right] / n_x$$

where  $WI_x$  is the weighted index scored by company  $x$ ,  $0 \leq I_x \leq 1$ ;  $w$  is the weighting point, i.e., five weighting points were given to items viewed as very important by the group of users, four points for those viewed as important, two points for some importance, and one point for little importance; and  $T_{tx}$  is the information item disclosed by company  $x$ .

#### 4.2. Data collection

To provide answers to the above research questions, we used the annual reports of companies listed on the Saudi Stock Exchange. By the end of 1999, 91 companies were listed on the Saudi Stock Exchange, 12 of which were operating in the financial sector. Since the purpose of this study is to look at disclosure practices by nonfinancial companies, annual reports were requested from all nonfinancial companies for the years 1992 and 1999.<sup>10</sup> These years were chosen because 1992 precedes the creation of SOCPA and 1999 is the latest annual

<sup>9</sup> Two research students scored the accounts. In cases where a significant difference in the score appeared, the authors double-checked them. The weighting, however, was based on a questionnaire survey mailed to a sample of users of the annual reports. The sample includes individual investors, institutional investors, academics, auditors, government officers, bank credit officers, and financial analysts. The disclosure index was then weighted by the mean and the median of the users' ranking of the importance of each of the items that made the index. Due to variations in the importance that various individual user groups attach to different disclosure items, the mean/median of the whole sample were used to weight the index.

<sup>10</sup> The Saudi companies surveyed in this study vary in size, average volume traded on the Saudi Stock Exchange, and government ownership. For example, the market capitalization ranges between SR 6 million, in the case of Beshah Agriculture and Development, and SR 29,350 million, in the case of the Saudi Basic Industries (SABIC). The average daily volume traded also ranges from as low as 2, in the case of Beshah Agriculture and Development, to more than 100,000, for the Saudi Cement. A government share in the surveyed companies was evident in companies operating in the electricity, transportation, hotel, manufacturing, and real estate sectors. For example, while government ownership reached almost 99% in the case of Saudi Consolidates Electricity Companies (SCECO-Southern), shares in a company like Saudi Arabia Refineries (SARCO) were all owned by the private sector.

report the researchers could obtain. Comparing the extent of corporate disclosure within the two periods would enable us to examine possible changes in the extent of disclosure and the impact, if any, of SOCPA on such disclosures. Annual reports of 40 out of 64 companies were collected for the years 1991/1992 and 52 out of 79 companies for the years 1998/1999.

#### 4.3. Statistical tests

The univariate analysis that measures central tendency and dispersion (mean and S.D.) and a test that identifies whether changes in one variable are associated with another (correlation) was employed. Since the data covered three major areas of disclosure (mandatory, voluntary related, and unrelated to mandatory), a Wilcoxon test was performed to identify whether the index of disclosure under the areas of disclosure is coming from the same population.

### 5. Findings

#### 5.1. Degree of compliance with standards requirements

As mentioned earlier, the degree of compliance and the extent of corporate disclosure will be used as a proxy of quality; a high degree of compliance and more disclosure are viewed as better quality. Hence, corporate disclosure was divided into three main categories. The first area covers mandatory disclosure that satisfies the minimum required by the Saudi accounting standard, such as the disclosure of company's total assets. The second category covers voluntary related to mandatory disclosure, such as the breakdown of assets (current and fixed assets). The third category covers voluntary unrelated to mandatory disclosure, such as future expansion in a company's assets.

Twenty-three disclosure items were derived from the main source of disclosure requirements, the *General Presentation and Procedure Standard* in Saudi Arabia, and formed the basis for the mandatory disclosure index. The annual reports of the sample Saudi nonfinancial companies were scored against the index. Descriptive statistics and comparison between the degree of significance of the difference between the unweighted and weighted disclosure indexes are given in Tables 1 and 2, respectively.<sup>11</sup>

It is evident from Table 1 that the mean of the mandatory disclosure index is relatively high across different sectors of industry with the electricity sector being the exception. The low level of disclosure achieved by the electricity sector can be explained on the grounds that this industry is viewed as a strategic one and is mainly owned by the government; in some companies, the government owns up to 95% of the outstanding shares. In addition, a view of

<sup>11</sup> The weighting was based on a questionnaire survey mailed to a sample of users of the annual reports. The sample includes individual investors, institutional investors, academics, auditors, government officers, bank credit officers, and financial analysts. The disclosure index was then weighted by the mean and the median of the users' ranking of the importance of each of the items that made the index. Due to variations in the importance that various individual user groups attach to different disclosure items, the mean/median of the whole sample were used to weight the index.



the profit and loss accounts of the electricity companies revealed that most of these companies sustained losses over a long period. More importantly, the Saudi government guarantees a 7.5% return to investors in this sector. Consequently, companies were left with little incentive to disclose detailed information. Hence, the low level of disclosure, reported in Table 1, is not surprising.

What attracts one's attention, on the other hand, is that the differences reported between the weighted and unweighted disclosure indexes were small. This might be because the index is formed from mandatory disclosure items that most companies are expected to comply with. Moreover, the users who took part in the survey seem to attach the same importance to the items that made the index. Needless to say, the disclosure items included in the index represent the minimum requirement that most companies are expected to disclose.

On the other hand, the Wilcoxon signed ranks test was undertaken to identify possible difference(s) between the unweighted and weighted disclosure index, documented in Table 2, and reported significant differences between the unweighted and weighted disclosure indexes in the agriculture and services sectors. While the difference was marginal in the agriculture sector, it was significant in the services industry.<sup>12</sup> This implies that Saudi users of the accounts attach different importance to the disclosure items that formed the index. In addition, companies operating in the services industry vary in size and their total assets range from SR 6 million to SR 1386. Large companies, rather than smaller ones, are expected to approach external sources of funds to finance their activities. Consequently, we expect them to include a statement of retained earnings in their annual reports as well as detailed and classified information about their assets. Furthermore, government ownership in the agriculture sector ranges between 0% and 100%. This is also expected to impact the degree of compliance by the Saudi companies.

Significant differences were also reported for the sample as a whole between the unweighted and weighted indexes. The result for the whole sample contradicts results reported by Chow and Wong-Boren (1987) and Robbins and Austin (1986), who obtained the same results under the unweighted and weighted indexes. This implies that external users in Saudi Arabia attach different importance to items disclosed in the annual report.

Looking at the individual items of disclosure that formed the index reported in Table 3, the conclusion is that all surveyed companies disclosed information on most of the items. As for items expected to appear on the balance sheet, a number of companies failed to classify assets and liabilities into current and fixed/long-term. A number of companies also failed to report assets and liabilities in order on the balance sheet. Further, few companies showed a statement of retained earnings on their balance sheets.

Although some might argue that these issues are not significant and their disclosure might not affect the quality of disclosure, this additional information helps users make more informed decisions. For example, financial analysts will find it difficult to assess the liquidity of a company if the company failed to classify its assets and liabilities into current and long-term. Other profitability indicators, such as fixed assets turnover, which is usually used to

<sup>12</sup> A small number of the surveyed companies failed to fully comply with the standards in a limited number of disclosure items. However, the degree of compliance with standards is on average high.

Table 1

The index of the Saudi-listed companies' mandatory, voluntary related to mandatory, and voluntary unrelated to mandatory disclosures requirements

	Agriculture			Manufacturing			Petrochemical		
	Unweighted (n = 9)	Weighted by mean (n = 9)	Weighted by median (n = 9)	Unweighted (n = 26)	Weighted by mean (n = 26)	Weighted by median (n = 26)	Unweighted (n = 5)	Weighted by mean (n = 5)	Weighted by median (n = 5)
<i>The index of the Saudi listed companies' compliance with mandatory disclosure requirements</i>									
Mean <sup>a</sup>	.93	.94	.93	.91	.91	.91	.92	.92	.91
Median	.94	.95	.94	.91	.90	.90	.92	.92	.91
S.D.	.06	.06	.06	.05	.05	.05	.07	.07	.07
Min	.84	.84	.84	.81	.80	.80	.82	.82	.82
Max	.99	.99	.99	.97	.97	.97	.99	.99	.99
<i>The index of the Saudi listed companies' voluntary disclosure related to mandatory disclosure</i>									
Mean	.37	.39	.41	.35	.35	.38	.33	.35	.37
Median	.36	.39	.41	.36	.37	.39	.32	.34	.36
S.D.	.05	.05	.06	.06	.07	.07	.03	.03	.03
Min	.28	.30	.31	.23	.25	.24	.30	.32	.34
Max	.36	.39	.41	.43	.45	.46	.38	.40	.41
<i>The index of the Saudi listed companies' voluntary disclosure not related to mandatory disclosure</i>									
Mean	.28	.29	.29	.38	.39	.39	.37	.38	.38
Median	.30	.31	.31	.37	.38	.38	.33	.34	.34
S.D.	.07	.07	.07	.09	.09	.09	.17	.17	.17
Min	.13	.14	.14	.20	.21	.22	.13	.14	.15
Max	.37	.39	.39	.53	.55	.54	.50	.52	.51

Indexes in this and the following tables are extracted from the 1999 annual reports of the sampled companies.

<sup>a</sup> The mean represents the average disclosure of items by the sampled companies.



Table 1 (continued)

	Services			Electricity			Real estate			Whole sample		
	Unweighted (n = 14)	Weighted by mean (n = 14)	Weighted by median (n = 14)	Unweighted (n = 7)	Weighted by mean (n = 7)	Weighted by median (n = 7)	Unweighted (n = 6)	Weighted by mean (n = 6)	Weighted by median (n = 6)	Unweighted (n = 67)	Weighted by mean (n = 67)	Weighted by median (n = 67)
<i>The index of the Saudi listed companies' compliance with mandatory disclosure requirements</i>												
Mean <sup>a</sup>	.91	.91	.91	.69	.69	.69	.92	.91	.91	.89	.89	.89
Median	.93	.93	.93	.69	.69	.68	.91	.90	.90	.90	.90	.90
S.D.	.06	.06	.06	.14	.14	.14	.08	.08	.08	.11	.11	.11
Min	.78	.78	.77	.42	.43	.43	.80	.79	.78	.42	.43	.43
Max	1.00	1.00	1.00	.88	.88	.88	.96	.95	.95	1.00	1.00	1.00
<i>The index of the Saudi listed companies' voluntary disclosure related to mandatory disclosure</i>												
Mean	.32	.34	.36	.20	.21	.22	.36	.38	.40	.33	.35	.36
Median	.31	.33	.35	.20	.22	.24	.32	.34	.36	.33	.34	.36
S.D.	.06	.06	.05	.12	.12	.13	.11	.11	.11	.08	.09	.09
Min	.23	.25	.30	.05	.06	.06	.25	.27	.29	.05	.06	.06
Max	.36	.39	.41	.37	.39	.41	.53	.57	.59	.53	.57	.59
<i>The index of the Saudi listed companies' voluntary disclosure not related to mandatory disclosure</i>												
Mean	.32	.33	.33	.28	.28	.28	.31	.32	.32	.34	.35	.35
Median	.28	.28	.29	.30	.31	.29	.30	.32	.32	.33	.33	.33
S.D.	.12	.12	.12	.19	.19	.18	.12	.13	.13	.12	.12	.12
Min	.20	.21	.22	.01	.01	.01	.17	.17	.16	.01	.01	.01
Max	.50	.51	.51	.47	.47	.46	.48	.50	.49	.53	.55	.54

Table 2

Level of significance of the differences between the disclosure indexes

	Agriculture	Manufacturing	Petrochemical	Services	Electricity	Real estates	Whole sample
<i>Level of significance of the difference between unweighted and weighted scores of mandatory disclosure using Wilcoxon signed ranks test</i>							
Index of unweighted mandatory vs. index of mandatory disclosure weighted by the mean	.01 *	.02 *	.24	.005**	.20	.04 *	.005**
Index of unweighted mandatory vs. index of mandatory disclosure weighted by the median	.07 *	.09 *	.18	.005**	.38	.09 *	.000**
Index of mandatory weighted by the mean vs. index of mandatory disclosure weighted by the median	.02 *	.14	.07 *	.007**	.25	.12	.000**
<i>Level of significance of the difference between unweighted and weighted scores of voluntary related to mandatory disclosure using Wilcoxon signed ranks test</i>							
Index of unweighted voluntary related to mandatory vs. index of voluntary related to mandatory disclosure weighted by the mean	.004**	.05 *	.02 *	.001**	.009**	.01 *	.000**
Index of unweighted voluntary related to mandatory vs. index of voluntary related to mandatory disclosure weighted by the median	.004**	.002**	.02 *	.001**	.009**	.01 *	.000**
Index of voluntary related to mandatory weighted by the mean vs. index of voluntary related to mandatory disclosure weighted by the median	.004**	.002**	.02 *	.001**	.009**	.01 *	.000**
<i>Level of significance of the difference between unweighted and weighted scores of voluntary unrelated to mandatory disclosure using Wilcoxon signed ranks test</i>							
Index of unweighted voluntary unrelated to mandatory vs. index of voluntary unrelated to mandatory disclosure weighted by the mean	.005**	.004**	.02 *	.001**	.06	.01 *	.000**
Index of unweighted voluntary unrelated to mandatory vs. index of voluntary unrelated to mandatory disclosure weighted by the median	.01 *	.004**	.04 *	.001**	.03 *	.02 *	.000**



Table 2 (continued)

	Agriculture	Manufacturing	Petrochemical	Services	Electricity	Real estates	Whole sample
<i>Level of significance of the difference between unweighted and weighted scores of voluntary unrelated to mandatory disclosure using Wilcoxon signed ranks test</i>							
Index of voluntary unrelated to mandatory weighted by the mean vs. index of voluntary unrelated to mandatory disclosure weighted by the median	.40 *	.15	.50	.05 *	.03 *	.12	.005**
<i>Level of significance of the difference between corporate mandatory levels of disclosure in the periods between 1992 and 1999 using Wilcoxon signed ranks test</i>							
Index of unweighted mandatory disclosure	.20	.20	.20	.30	.14	.33	.10
Index of mandatory disclosure weighted by the mean	.30	.20	.20	.35	.14	.33	.12
Index of mandatory disclosure weighted by the median	.40	.25	.20	.35	.14	.33	.12
<i>Level of significance of the difference between corporate voluntary related to mandatory levels of disclosure in the periods between 1992 and 1999 using Wilcoxon signed ranks test</i>							
Index of unweighted voluntary related to mandatory disclosure	.09	.09	.50	.20	.07	.09	.11
Index of voluntary related to mandatory disclosure weighted by the mean	.09	.08	.50	.20	.07	.09	.11
Index of voluntary related to mandatory disclosure weighted by the median	.12	.09	.45	.20	.07	.09	.11
<i>Level of significance of the difference between corporate voluntary related to mandatory levels of disclosure in the periods between 1992 and 1999 using Wilcoxon signed ranks test</i>							
Index of unweighted voluntary unrelated to mandatory disclosure	.16	.12	.24	.15	.04 *	.09	.14
Index of voluntary unrelated to mandatory disclosure weighted by the mean	.20	.16	.23	.15	.02 *	.05 *	.08
Index of voluntary unrelated to mandatory disclosure weighted by the median	.18	.18	.21	.15	.02 *	.05 *	.08

\* Actual significance level:  $\alpha \leq .05$ .\*\* Actual significance level:  $\alpha \leq .005$ .

Table 3  
Descriptive statistics on items formed disclosure indexes

Items disclosed	Mean	Median	S.D.	Min	Max	Percentage of companies disclosed the item
<i>Items formed mandatory disclosure index</i>						
Information on the firm's activities	.98	1.0	.08	.5	1.0	100
A section on the significant accounting policies employed by the firm	.96	1.0	.16	.0	1.0	.96
Classifying assets between current and fixed	.65	.50	.20	.25	1.0	100
Reporting assets in order: current, investments, fixed, and intangibles	.67	1.0	.44	.0	1.0	70
Categorizing current assets: cash, debtors, stock, short-term investment, etc.	.95	1.0	.20	.0	1.0	96
Disclose the aggregate amount of current assets	1.0	1.0	.00	.0	1.0	100
Categorizing fixed assets: plant and equipment, buildings, land, furniture, etc.	.97	1.0	.18	.0	1.0	97
Disclose the carrying value of fixed assets (Total fixed assets – depreciation)	1.0	1.0	.0	.0	1.0	100
Classifying liabilities between current and long-term	.82	1.0	.38	.0	1.0	82
Categorizing current liabilities: creditors, short-term loans, tax, etc.	.87	1.0	.25	.0	1.0	96
Disclose the aggregate amount of current liabilities	.98	1.0	.11	.0	1.0	99
Categorizing long-term liabilities: bank loans, bonds, etc.	.98	1.0	.09	.5	1.0	100
Disclose the statement of owners' equity in specific order	.97	1.0	.05	.75	1.0	100
Amount of sales (gross or net)	.90	1.0	.30	.00	1.0	90
Other revenues	1.0	1.0	.00	1.0	1.0	100
Cost of goods sold	.79	1.0	.41	.00	1.0	79
Gross profit/loss	.79	1.0	.41	.00	1.0	79
Categorizing expenses into:						
Administrative and general expenses	.90	1.0	.30	.00	1.0	.90
Selling expenses	.40	.0	.50	.00	1.0	40
Net profit/loss	1.0	1.0	.00	1.00	1.0	100
Retained earnings statement	.75	1.0	.37	.0	1.0	85
Changes in owners' equity statement	1.0	1.0	.00	1.00	1.0	100
Two-year figures	1.0	1.0	.00	1.00	1.0	100
<i>Voluntary disclosure related to mandatory disclosure</i>						
Audit Fees	.00	.00	.00	.00	.00	.00
Directors' remuneration	.90	1.0	.27	.00	1.0	90
Management's remuneration	.15	.00	.22	.00	1.0	24
Revenue classified into local and foreign markets	.24	.00	.41	.00	1.0	22
Expenses incurred and related to promotion and advertisement	.30	.00	.45	.00	1.0	28
Wages expenses incurred classified into local and foreign employees	.00	.00	.00	.00	.00	.00
Classification of debtors into different aging categories	.00	.00	.00	.00	.00	.00
Classification of stock	.89	1.0	.30	.00	1.0	90
Market value of stock	.00	.00	.00	.00	.00	.00



Table 3 (continued)

Items disclosed	Mean	Median	S.D.	Min	Max	Percentage of companies disclosed the item
<i>Voluntary disclosure related to mandatory disclosure</i>						
Distinction between raw material value bought locally and from abroad	.00	.00	.00	.00	.00	.00
Details of fixed assets	.97	1.0	.15	.00	1.0	98
Information on equity investment	.64	.75	.21	.00	1.0	97
Categorization of equity investment	.44	.50	.21	.00	1.0	85
Market value of equity investment	.45	.50	.22	.00	1.0	86
Information on the calculation of Zakat	.03	.00	.10	.00	1.0	2
Information on long-term debt	.00	.00	.00	.00	.00	.00
Information on pension and retirement plans	.00	.00	.00	.00	.00	.00
Earnings per share	.12	.00	.28	.00	1.0	11
<i>Voluntary disclosure of unrelated to mandatory disclosure</i>						
Directors' names	.62	1.0	.48	.00	1.0	45
Top management names	.00	.0	.00	.00	1.0	.00
Majority shareholders	.92	1.0	.15	.00	1.0	95
Information on different types of products	.90	1.0	.25	.00	1.0	95
Financial statistics for more than 2 years	.18	.0	.37	.00	1.0	18
Information on events that affected current year's operations	.88	1.0	.30	.00	1.0	92
Information on transactions that expected to affect future operations	.05	.0	.20	.00	1.0	5
Information on the company's dividends policy	.00	.0	.0	.00	.00	.00
Information on future expansion (capital expenditures)	.20	.0	.36	.00	1.0	23
Cash flow statement	.80	1.0	.20	.00	1.0	80
Percentage of foreign labor force in different section of the company	.14	.0	.25	.00	1.0	20
Information on training and human resources development	.12	.0	.22	.00	1.0	20
Information on university graduates recruitment policy	.20	.0	.31	.00	1.0	26
Information on donations to universities and charitable organizations	.03	.0	.11	.00	1.0	3

assess the efficiency of the company in making use of fixed assets, will be difficult to obtain from a company's report where assets are not classified.

As far as the profit and loss account is concerned, a limited number of companies disclosed a small amount of information about the cost of sales and gross profit. Few companies disclosed information on selling expenses. Again, the disclosure of little or no information on these items would make it difficult for users to assess the financial position and performance of the company under consideration. For example, the profit–margin ratio relates gross profit to sales. It indirectly reveals the cost of sales in relationship to sales and gives an indication about a company's cost management. The same argument applies to selling expenses. A lack of disclosure information on selling expenses would make it difficult to assess the size of those expenses relative to the company's sales. Information contained in such disclosure

would help users monitor and compare expenses before making any decision related to the company under review.

More importantly, inconsistency and/or failure in reporting reduce comparability between companies operating within the same industry. This may result in uninformed decisions and lead to questions about the usefulness of the reported information. By way of explanation, it is important to mention here that Saudi businesses are still classified as family businesses and few investors own most of the companies' outstanding shares. Hence, they have little incentives to disclose detailed information. Moreover, disclosing additional information may expose companies to their competitors. Thus, companies tend to disclose little or no information. Since companies in Saudi Arabia are dominated by a small number of investors and families, it is possible to request information directly from these companies.

### *5.2. Do Saudi companies disclose more than required by the standards?*

The analysis of the mandatory disclosure indicated a high degree of compliance with the stated standards. It was, therefore, important to investigate whether Saudi companies disclose detailed voluntary information related to the items of information required by law. Voluntary disclosures are classified into those related to and those unrelated to mandatory disclosure.

#### *5.2.1. Voluntary disclosure related to mandatory disclosure*

Eighteen voluntary disclosure related to mandatory disclosure items are used to form the index. Descriptive statistics and comparison between the degree of significance of the difference between the unweighted and weighted disclosure indexes are summarized in Tables 1 and 2, respectively.

Table 1 reveals that the mean value of the voluntary related to the mandatory disclosure is relatively low. The mean value of the voluntary associated with mandatory disclosure, for the whole sample, dropped from 89% to only 33%. The table also shows that the lowest level of disclosure was registered by companies operating in the electricity sector and the highest score was achieved by the sample of agriculture companies.

On the other hand, Table 2 shows a significant difference in the value of the unweighted and weighted scores for voluntary related to mandatory disclosure indexes in all industries under study. This implies that although the level of voluntary related to mandatory disclosure is low, the users seem to attach a high level of importance to the disclosed information.

The relatively low level of voluntary disclosure can be explained on the grounds that a significant proportion of companies in Saudi Arabia are owned either by families or the government who have little incentive to disclose voluntary information. According to Naser (1998), users of corporate information in Saudi Arabia are financial institutions, major investors, and governmental agencies, all of whom have access to company records and can demand whatever information they need, public financial disclosure is kept at a minimum.

An examination of the descriptive statistics on individual disclosure items that formed the index, summarized in Table 3, shows that Saudi companies do not disclose any information on seven of the listed items. The companies surveyed disclose detailed information on the classification of fixed assets on the balance sheet, directors' remuneration, and stock



classification. However, little information is disclosed on information relating to the calculation of Zakat. In a conservative country like Saudi Arabia, where Islam is evident in all aspects of daily life, one would have expected detailed information on Zakat, one of the five pillars of Islam.

### 5.2.2. *Voluntary unrelated to mandatory disclosure*

An index formed from a list of voluntary disclosure items not related to mandatory disclosure was used to score the disclosure of Saudi companies as reported in their annual reports. Descriptive statistics on the industry level and comparison between the degree of significance of the difference between the unweighted and weighted disclosure indexes are presented in Tables 1 and 2, respectively.

Table 1 reports a slight drop in the mean of the entire sample for voluntary unrelated to mandatory disclosure compared to voluntary related to mandatory disclosure. While the level of voluntary disclosure improved on the voluntary related to mandatory disclosures in the agriculture and real estates industries, it declined in the manufacturing, petrochemical, services, and electricity industries. It should be noted that the mean level of disclosure for all industries, with the exception of electricity, was very close to the mean value of the whole sample.

On the other hand, the results of the Wilcoxon signed ranks test reported in Table 2 points to significant differences between the mean values of the unweighted and weighted disclosure indexes in most industries. The difference was less evident between the indexes weighted by the mean and the median in most industries, except for electricity.

A comparison of Tables 1 and 2 reveal that the mean index of disclosure for the whole sample is low. This is in line with the results achieved in the voluntary related to mandatory index of disclosure. While a high level of disclosure was registered by the agriculture industry, the lowest level of disclosure was reported by the electricity industry.

Descriptive statistics on individual items that formed the index of voluntary disclosure reveal that none of the surveyed companies disclose information relating to dividends policy (see Table 3). Similarly, none of the surveyed companies disclose a list of the top management's names. A sizeable number of the surveyed companies disclose detailed information on the majority shareholders, different types of products that they produce, and major activities that affected the current financial year.

### 5.2.3. *The relationship between mandatory and voluntary disclosures*

In this section, the relationship between the level of mandatory and voluntary disclosures is examined. In Table 4, the coefficients of correlation together with the level of significance between the unweighted values of disclosure indexes are presented. The correlation of the weighted disclosure indexes, measured by the mean and their level of significance, are summarized in Table 4.

Table 4 reports a positive and significant correlation ( $r=.53$ ,  $P<.000$ ) between the mandatory and voluntary related to mandatory disclosures for the sample as a whole. Hence, the results support Dye (1986), who suggested a positive association between mandatory and voluntary disclosure as voluntary disclosure complements the mandatory.





Index of voluntary related to mandatory disclosure weighted by mean

Correlation between the value of indexes of mandatory and voluntary disclosure weighted by the median

	Agriculture		Manufacturing		Petrochemical		Services		Electricity		Real Estates		Whole Sample	
	Index of voluntary related to mandatory disclosure weighted by median	Index of voluntary related to mandatory disclosure weighted by median	Index of voluntary related to mandatory disclosure weighted by median	Index of voluntary related to mandatory disclosure weighted by median	Index of voluntary related to mandatory disclosure weighted by median	Index of voluntary related to mandatory disclosure weighted by median	Index of voluntary related to mandatory disclosure weighted by median	Index of voluntary related to mandatory disclosure weighted by median	Index of voluntary related to mandatory disclosure weighted by median	Index of voluntary related to mandatory disclosure weighted by median	Index of voluntary related to mandatory disclosure weighted by median	Index of voluntary related to mandatory disclosure weighted by median	Index of voluntary related to mandatory disclosure weighted by median	Index of voluntary related to mandatory disclosure weighted by median
Index of mandatory disclosure weighted by median	-.24 (.26)	-.19 (.31)	-.79 (.003)	.28 (.21)	.18 (.41)	.50 (.25)	.05 (.44)	-.01 (.48)	.71 (.04)	-.72 (.03)	.54 (.17)	-.12 (.42)	.48 (.00)	-.04 (.37)
Index of voluntary related to mandatory disclosure weighted by median		.01 (.49)		-.11 (.38)		.70 (.15)		.08 (.41)				-.02 (.49)		-.04 (.37)

<sup>a</sup> Pearson's correlation coefficient.<sup>b</sup> Significance level.

The correlation between the mandatory and voluntary related to mandatory disclosures in individual sectors reveal a different story. Of all the sectors covered in the study, only electricity registered a significant and positive correlation between the two indexes. The manufacturing industry reported a significant but negative correlation between the two indexes as noted earlier. This might be explained because the electricity industry is considered strategic, and companies in this sector are mainly owned by government. We expect these companies to produce voluntary information related to employees and other environmental factors that reflect the government's commitment towards employees' welfare and society at large.

On the other hand, the correlation between the index of voluntary disclosure for the whole sample and the other two indexes used in this study is weak and insignificant. It is important to mention that the disclosure items of voluntary disclosure that formed the index are mainly derived from the director's report. Voluntary related to mandatory disclosure is taken from the notes to the accounts. A relationship between these statements is unlikely to exist, since each part of the annual report is prepared by different parties, where each party attempts to signal a different message to the external users of the report.

The above results may emphasize the following. First, the weighted and unweighted indexes produced relatively similar results. Second, in Saudi Arabia, no significant correlation exists between mandatory disclosure and voluntary disclosure. The assumption that good mandatory disclosure results in good voluntary disclosure is not evident in the case of Saudi companies.

### *5.3. Difference(s) in the level of disclosure after the creation of SOCPA*

#### *5.3.1. Mandatory disclosure*

As mentioned earlier, SOCPA was established in 1993. Hence, the attempt was made to examine possible changes in the level of disclosure after its creation. To compare the effect of the SOCPA on financial reporting practices in Saudi Arabia, disclosure indexes were constructed from a sample of companies for the years 1992 (1 year before the establishment of SOCPA) and 1999.<sup>13</sup> Table 5 provides comparative descriptive statistics on the unweighted and weighted indexes. The results of statistical tests on the differences in the level of disclosure between the years 1992 and 1999 measured by Wilcoxon signed ranks test are given in Table 2.

It is evident from Table 5 that little improvement in the level of disclosure took place in all industries except that reported by electricity companies. In addition, variations between companies within all industries, except the electricity industry, diminished in the period between 1992 and 1999. This can clearly be seen from the reported standard deviations. As for the whole sample, very little increase in the level of disclosure occurred.

As noted above, electric companies (utilities) are largely government owned and generally operate at a loss, hence, their management has few incentives to improve disclosure practices. The little improvement achieved by the sample as a whole might be explained because some companies reported high levels of compliance with the stated standards. There is little room to

<sup>13</sup> Annual reports of a sample of the same companies were used.



disclose more information. The ability of SOCPA to monitor and enforce the standard might also explain the insignificant change in the level of disclosure. Unless SOCPA has the power to disqualify the accounts of companies that do not comply with the stated standard, we expect little improvement in the extent of disclosure. On the other hand, the Wilcoxon signed ranks test reported in Table 2 showed no significant difference in the level of mandatory disclosure in the years 1992 and 1999 between industries and/or the sample as a whole.

The outcome of the analysis makes it difficult to verify whether the little improvement in the level of disclosure is due to the creation of SOCPA. In the Middle East, where a number of governments have embarked on privatization programs, most of the local auditors are affiliated with international firms to give assurances to the national as well as foreign investors. Hence, the improvement in the level of disclosure reported by Saudi companies operating in most industries might be attributed to this move. It could also be that a number of companies are considering floating more shares on the stock exchange. Additional disclosure assists investors in making informed decisions about the company. Disclosing additional information may also assist in cases of merger or takeovers.

### 5.3.2. *Voluntary disclosure*

The level of voluntary related to mandatory disclosure before and after the creation of SOCPA was examined and descriptive statistics on changes in the level of disclosure are summarised in Table 5. Table 5 indicates that the level of voluntary related to mandatory disclosure for the whole sample was lower in the year 1999 than it was for the year 1992. The result was consistent under the unweighted and weighted indexes. Looking at the results achieved by individual industries reveals that while the agriculture, petrochemical, and services industries reported slight improvement in the level of voluntary related to mandatory disclosure, a decline in the level of disclosure was registered in manufacturing, electricity, and real estates industries. It is important to mention, however, that the level of variations within the industries witnessed a decline, as reflected by the reported standard deviations.

The analysis may point to the fact that, on average, SOCPA has had little impact on the level of voluntary related to mandatory disclosure. The presence of SOCPA, however, coincided with the decline in the gap in the level of disclosure between the surveyed companies. This implies that companies tend to make similar voluntary related to mandatory disclosure. This might be explained on the grounds that these companies fear competition and restrict their disclosure to specific items. It is also possible that the companies employ the same auditor; this might impact the choice of items disclosed in the annual report. It is also possible that preparers of the accounts (accountants) have the same background.

As for voluntary disclosure with no relation to mandatory disclosure, Table 5 shows a little increase in the level of voluntary disclosure in 1999 over that of 1992 for the sample as a whole. Individual industry analysis indicates that all but electricity industries registered little increase in the level of voluntary disclosure. It should be noted that variations in the level of disclosure for the whole sample slightly increased as measured by the standard deviation. This phenomenon is evident in industries like manufacturing, petrochemical, services, and electricity. An interesting point to note in Table 5 is that the maximum level of disclosure for the whole sample improved in 1999 over that of 1992. This might explain the increase in the

Table 5

Descriptive statistics on the unweighted and weighted values of mandatory, voluntary related to mandatory, and voluntary unrelated to mandatory indexes disclosure for the years 1992 and 1999

Agriculture			Manufacturing			Petrochemical		
Unweighted	Weighted by mean	Weighted by median	Unweighted	Weighted by mean	Weighted by median	Unweighted	Weighted by mean	Weighted by median
<i>Descriptive statistics on the unweighted and weighted values of mandatory indexes disclosure for the years 1992 and 1999</i>								
1992								
Number	7	7	15	15	15	5	5	5
Mean	.88	.90	.86	.87	.87	.87	.87	.87
Median	.93	.93	.87	.87	.87	.90	.90	.89
S.D.	.10	.11	.08	.09	.09	.10	.10	.10
Min	.72	.72	.70	.70	.70	.74	.74	.74
Max	.99	.99	1.00	1.00	1.00	.96	.97	.96
1999								
Number	7	7	15	15	15	5	5	5
Mean	.91	.92	.90	.90	.89	.91	.91	.91
Median	.91	.91	.91	.91	.90	.92	.92	.91
S.D.	.06	.06	.06	.05	.05	.07	.07	.07
Min	.84	.84	.81	.80	.80	.82	.82	.82
Max	.90	.99	.97	.97	.97	.99	.99	.99
<i>Descriptive statistics on the unweighted and weighted values of voluntary related to mandatory indexes disclosure for the years 1992 and 1999</i>								
1992								
Number	7	7	15	15	15	5	5	5
Mean	.34	.36	.38	.37	.42	.31	.34	.36
Median	.34	.36	.36	.36	.40	.33	.35	.37
S.D.	.07	.07	.07	.06	.06	.07	.07	.08
Min	.27	.28	.28	.30	.32	.22	.24	.25
Max	.44	.46	.60	.52	.54	.38	.40	.42



Table 5 (continued)

Services			Electricity			Real Estates			Whole Sample		
Unweighted	Weighted	Weighted	Unweighted	Weighted	Weighted	Unweighted	Weighted	Weighted	Unweighted	Weighted	Weighted
by mean	by mean	by median	by mean	by mean	by median	by mean	by mean	by median	by mean	by mean	by median
<i>Descriptive statistics on the unweighted and weighted values of mandatory indexes disclosure for the years 1992 and 1999</i>											
1992											
Number	9	9	5	5	5	4	4	4	45	45	45
Mean	.86	.86	.72	.72	.72	.88	.88	.87	.85	.86	.86
Median	.86	.86	.72	.72	.73	.91	.90	.90	.87	.87	.87
S.D.	.10	.10	.12	.16	.13	.12	.14	.15	.11	.11	.11
Min	.68	.69	.56	.56	.56	.74	.72	.71	.56	.56	.56
Max	1.00	1.00	.88	.88	.87	1.00	1.00	1.00	1.00	1.00	1.00
1999											
Number	9	9	5	5	5	4	4	4	45	45	45
Mean	.89	.88	.64	.64	.66	.88	.87	.86	.87	.88	.86
Median	.87	.89	.64	.64	.66	.91	.90	.90	.90	.90	.87
S.D.	.06	.06	.19	.19	.18	.07	.07	.08	.11	.07	.11
Min	.78	.77	.42	.42	.43	.80	.79	.77	.42	.42	.43
Max	.94	.94	.88	.88	.87	.92	.92	.92	.99	.99	.99
<i>Descriptive statistics on the unweighted and weighted values of voluntary related to mandatory indexes disclosure for the years 1992 and 1999</i>											
1992											
Number	9	9	5	5	5	4	4	4	45	45	45
Mean	.28	.30	.24	.25	.27	.35	.38	.40	.33	.35	.37
Median	.30	.32	.23	.24	.26	.34	.37	.40	.34	.36	.39
S.D.	.09	.09	.19	.20	.20	.04	.04	.04	.10	.10	.10
Min	.13	.14	.07	.07	.08	.32	.34	.36	.07	.07	.08
Max	.38	.41	.43	.45	.47	.40	.42	.44	.60	.52	.54

(continued on next page)





Table 5 (continued)

	Services			Electricity			Real Estates			Whole Sample		
	Unweighted	Weighted	Weighted	Unweighted	Weighted	Weighted	Unweighted	Weighted	Weighted	Unweighted	Weighted	Weighted
	by mean	by mean	by median	by mean	by mean	by median	by mean	by mean	by median	by mean	by mean	by median
<i>Descriptive statistics on the unweighted and weighted values of voluntary related to mandatory indexes disclosure for the years 1992 and 1999</i>												
1999												
Mean	.31	.33	.35	.14	.15	.16	.33	.36	.37	.31	.33	.35
Median	.30	.32	.34	.11	.12	.13	.32	.34	.36	.32	.34	.36
S.D.	.05	.05	.05	.11	.12	.12	.03	.03	.03	.08	.09	.09
Min	.26	.28	.30	.05	.06	.06	.31	.34	.36	.05	.06	.06
Max	.41	.43	.45	.30	.32	.33	.37	.39	.41	.51	.49	.51
<i>Descriptive statistics on the unweighted and weighted values of voluntary index disclosure for the years 1992 and 1999</i>												
1992												
Mean	.28	.29	.28	.41	.41	.40	.18	.19	.19	.32	.34	.33
Median	.30	.31	.31	.45	.46	.44	.17	.18	.18	.30	.32	.32
Median	.11	.11	.11	.12	.12	.12	.12	.12	.12	.11	.11	.10
S.D.	.13	.15	.14	.23	.24	.23	.07	.07	.07	.07	.07	.07
Max	.43	.44	.43	.50	.50	.49	.30	.32	.31	.50	.51	.49
1999												
Mean	.37	.38	.38	.34	.34	.34	.23	.25	.24	.34	.36	.36
Median	.37	.39	.39	.45	.45	.45	.23	.25	.25	.35	.37	.37
S.D.	.13	.12	.12	.23	.23	.27	.07	.07	.08	.12	.12	.12
Min	.20	.22	.22	.00	.00	.00	.17	.17	.16	.00	.00	.00

level of variations within industries. In other words, some companies voluntarily reported additional information while others continued to report the same information.

To explore significant differences between the level of voluntary disclosure between the years 1992 and 1999, a Wilcoxon signed ranks test was undertaken and reported in Table 2.

It is evident from the table above that at the industry level, significant differences were reported in the voluntary disclosure in the services industry. For the sample as a whole, however, the test shows no significant difference in any of the industries. The results are surprising since the assumption here is that SOCPA was expected to impact mandatory rather than voluntary disclosure.

## **6. Conclusion**

This study set out to give answers to a number of research questions relating to the quality of information disclosed by a sample of Saudi nonfinancial companies listed on the Saudi Stock Exchange. In addition, in this study, we compare the extent of corporate disclosure before and after the creation of SOCPA. For our sample, we used 63% and 66% of the total population of companies listed on the Saudi Stock exchange in the years 1992 and 1999, respectively. Information disclosed in the annual reports was classified into three main categories: mandatory, voluntary related to mandatory, and voluntary with no relation to mandatory disclosure. The disclosure indexes constructed for these categories were scored against the disclosed information. In departure from most of the previous studies conducted in this area of research, we weighted the indexes by the mean and the median of responses of seven users of the annual reports in Saudi Arabia. The results of both unweighted and weighted indexes are reported.

The outcome of the analysis indicates a relatively high compliance with the mandatory requirements in all industries covered by the study, with the exception of the electricity sector. Unlike what is advocated by Chow and Wong-Boren (1987) and Robbins and Austin (1986) that no significant differences exist in the use of unweighted and weighted disclosure, significant differences were reported between the unweighted index and the index weighted by the mean and median of a group of Saudi external users in a number of industries covered in this study. In all cases, it is fair to say that the Saudi companies included in the study comply with the standards and disclose more than the minimum information required by law. The level of voluntary disclosure, however, is relatively low. Furthermore, the level of disclosure and the importance that the users attach to information item of disclosure appear to vary from one industry to another.

When we examine mandatory and voluntary related to mandatory disclosure, using both the unweighted and weighted indexes, we find a positive and significant association between the two variables for the sample as a whole. Of all the sectors investigated in the study, only the electricity industry showed a positive and significant association between mandatory and voluntary related to mandatory disclosures.

Voluntary disclosure unrelated to mandatory disclosure shows an insignificant correlation with both mandatory and voluntary related to mandatory disclosure for unweighted and weighted indexes for the sample as a whole as well as for individual industries.



The analysis also shows that the creation of SOCPA has had little impact on corporate reporting in Saudi Arabia. This might be because the organization is still relatively new and lacks an enforcement mechanism. In summary, although the degree of compliance with accounting standards is relatively high, the level of voluntary disclosure is still relatively low. Finally, a number of studies conducted on neighboring Arab countries indicated that a national auditor's affiliation with big international audit firms has a positive impact on the depth of disclosure.

#### Appendix A. Disclosure items included in the index and the weight given to each item by various user groups

Disclosure items	1 (n = 65)	2 (n = 219)	3 (n = 42)	4 (n = 52)	5 (n = 48)	6 (n = 50)	7 (n = 58)
<i>Mandatory disclosure items</i>							
Description of firm's activities	4.13	4.09	4.15	4.18	3.99	4.24	4.70
Description of significant accounting policies	4.09	4.23	4.44	4.38	4.39	4.29	4.67
Two-year figures	4.73	4.91	4.73	4.87	4.71	4.82	4.59
Classification of assets	4.03	4.36	4.45	4.54	4.65	4.34	4.56
Assets sequence	4.06	4.07	4.23	4.27	4.14	4.66	4.62
Components of current assets	4.04	4.39	4.47	4.46	4.25	4.66	4.71
Total current assets	4.20	4.58	4.19	4.01	4.10	4.66	4.71
Components of fixed assets	4.06	4.10	4.30	4.34	4.17	4.66	4.74
Depreciable assets net amount	3.88	3.81	4.08	4.20	3.92	4.47	4.64
Sequence of liabilities	3.97	4.03	4.25	4.39	4.16	4.84	4.71
Classification of current liabilities	4.12	4.29	4.43	4.59	4.45	4.84	4.71
Total current liabilities	4.16	4.36	4.23	4.18	4.17	4.66	4.69
Components of noncurrent liabilities	4.03	4.07	4.33	4.48	4.35	4.66	4.79
Sequence of owners' equity	4.46	4.39	4.56	4.31	4.57	4.68	4.90
Sales or net sales	4.62	4.77	4.81	4.76	4.83	4.95	4.87
Other revenue	4.52	4.53	4.41	4.52	4.57	4.71	4.77
Cost of sales	4.60	4.74	4.68	4.71	4.73	4.61	4.92
Gross profit	4.80	4.78	4.47	4.58	4.71	4.71	4.92
General and administrative expenses	4.59	4.78	4.57	4.67	4.78	4.58	4.74
Selling expenses	4.55	4.74	4.47	4.65	4.74	4.55	4.72
Net profit (loss)	4.84	4.91	4.67	4.69	4.82	4.94	4.70
Retained earnings statement	4.51	4.63	4.43	4.27	4.43	4.92	4.97
Statement of changes in owners' equity	4.42	4.56	4.37	4.26	4.18	4.24	4.70
<i>Voluntary disclosure related to mandatory disclosure</i>							
Audit fees	3.80	4.25	3.51	3.61	3.59	3.92	3.56
Directors' remuneration	4.31	4.22	3.41	4.39	4.43	4.28	4.31
Management's remuneration	4.20	3.92	4.15	4.24	3.81	4.08	3.96
Revenue classified into local and foreign markets	4.28	4.30	4.28	4.65	4.12	4.29	4.47
Expenses incurred and related to promotion and advertisement	3.79	3.81	3.90	3.99	3.80	3.81	3.92
Wages expenses incurred classified into local and foreign employees	3.42	3.12	3.28	3.61	3.11	3.27	3.36

(continued on next page)

**Appendix A** (continued)

Disclosure items	1 (n = 65)	2 (n = 219)	3 (n = 42)	4 (n = 52)	5 (n = 48)	6 (n = 50)	7 (n = 58)
<i>Voluntary disclosure related to mandatory disclosure</i>							
Classification of debtors into different aging categories	3.75	3.83	4.08	4.35	3.50	3.79	3.89
Classification of stock	3.84	3.80	4.10	4.34	3.82	3.81	3.98
Market value of stock	4.25	4.26	4.24	4.49	4.10	4.27	4.36
Distinction between raw material value bought locally or from abroad	3.78	3.83	3.61	3.95	3.26	3.80	3.58
Details of fixed assets	4.32	4.22	4.44	4.52	4.40	4.27	4.46
Information on equity investment	4.46	4.57	4.45	4.71	4.50	4.51	4.61
Categorization of equity investment	4.33	4.41	4.32	4.49	4.31	4.35	4.40
Market value of equity investment	4.34	4.45	4.37	4.56	4.38	4.42	4.57
Information on the calculation of Zakat	3.70	3.41	3.65	3.99	3.75	3.58	3.74
Information on long-term debt	4.31	4.42	4.63	4.66	4.36	4.43	5.51
Information on pension and retirement plans	3.37	3.19	3.48	4.10	3.21	3.27	3.41
Earnings per share	4.78	4.83	4.41	4.40	4.37	4.52	4.79
<i>Voluntary disclosure unrelated to mandatory disclosure</i>							
Directors' names	4.26	4.22	4.37	4.58	3.97	4.24	4.27
Top managements' names	4.13	3.65	4.10	4.45	3.63	3.99	3.78
Majority shareholders	3.78	3.55	3.99	4.18	3.10	3.69	3.62
Information on different types of products	4.40	4.34	4.42	4.50	4.25	4.38	5.51
Financial statistics for more than 2 years	4.15	4.34	4.18	4.47	3.39	4.17	4.38
Information on events affected current year's operations	4.61	4.90	4.55	4.88	4.52	4.64	4.70
Information on transactions that expected to affect future operations	4.35	4.67	4.42	4.79	4.01	4.39	4.51
Information on the company's dividends policy	4.62	4.55	4.36	4.65	4.35	4.52	4.59
Information on future expansion (capital expenditures)	4.30	4.10	4.32	4.62	3.95	4.27	4.15
Cash flow statement	4.40	4.70	4.79	4.90	4.20	4.55	4.68
Percentage of foreign labor force in different sections of the company	4.11	3.85	3.84	4.05	3.68	3.87	3.77
Information on training and human resources development	3.75	3.89	3.79	3.96	3.63	3.78	3.74
Information on university graduates recruitment policy	3.87	3.46	3.59	3.75	3.42	3.67	3.57
Information on donations to universities and charitable organizations	3.82	4.20	3.56	3.91	3.89	3.59	3.83

(1) Individual investors, (2) institutional investors, (3) financial analysts, (4) bank credit officers, (5) government representative, (6) academics, (7) auditors.

Mean values: scoring: 1 = *not important at all*; 5 = *very important*.

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## Effect of foreign GAAP earnings and Form 20-F reconciliations on revisions of analysts' forecasts

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### Abstract

A controversial area of U.S. securities regulations involves the Securities and Exchange Commission's (SEC) financial reporting requirements for foreign firms, specifically, the necessity of providing a quantitative reconciliation to U.S. GAAP (Form 20-F). The results of earnings–returns research to date indicate that the release of foreign GAAP earnings provides important information. However, the results of earnings–returns studies using reconciled information are mixed. Instead of using an earnings–returns methodology adopted in prior research, this study utilizes analysts' revisions as a market indicator of the effect of information released in foreign GAAP earnings and the reconciled information in Form 20-F. Additionally, the study investigates the influence of four firm-specific variables in the firm's information environment—similarities of accounting systems, analyst following, difference between reconciled earnings and foreign GAAP earnings, and dispersion of analysts' expectations—on positive abnormal revision activities of financial analysts at the time of filing Form 20-F. The results indicate that the release of foreign GAAP earnings (at earnings announcement dates) and reconciled information (at the time of filing Form 20-F) contains relevant information as measured by analysts' revisions. Further, variables representing analyst following, change in reconciled earnings, and dispersion of

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analysts' expectations are significant in explaining the variation observed in positive abnormal revisions.

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*Keywords:* Form 20-F reconciliation; U.S. GAAP; Foreign earnings announcements; Analysts' revisions of forecasts

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## **1. Introduction**

Globalization of equity markets involves numerous institutional activities and regulations that facilitate access to foreign markets for both investors and issuers. In order to list securities on U.S. exchanges, foreign firms must register with the Securities and Exchange Commission (SEC) in accordance with the Securities Exchange Act of 1934. Among other things, registration requires a foreign firm to provide periodically a quantitative reconciliation of selected financial data according to U.S. GAAP (hereafter referred to as reconciled information).

Currently, the SEC allows registered foreign firms to file Form 20-F to satisfy the SEC's financial reporting requirements rather than using the domestic reporting forms (10-K and 10-Q). Firms filing Form 20-F may present their financial statements in accordance with a comprehensive body of accounting principles other than U.S. GAAP (e.g., German, UK, or other national body of accounting principles) if accompanied by a quantitative reconciliation to U.S. GAAP of net income, shareholders' equity, and earnings per share (SEC, 1995). In addition to filing Form 20-F within 6 months of the fiscal year-end, any reports filed in their foreign jurisdiction must also be filed with the SEC.

The question of whether the reconciliation requirement enhances or diminishes the investor protection and market-quality objectives of the SEC has been widely debated. Some believe that requiring foreign firms to reconcile certain financial information to U.S. GAAP upholds the investor protection objective by requiring full and fair disclosure by foreign firms (Breedon, 1994; Kosnik, 1994; Shapiro, 1993). Others believe that the mandatory SEC requirements may deter foreign firms from listing on U.S. exchanges, thereby forcing U.S. investors to transact in more costly and less regulated markets (Baumol & Malkiel, 1993; Cochrane, 1994; Edwards, 1993; Grundfest, 1992).

In general, prior empirical studies using an earnings–returns methodology show that foreign GAAP earnings have information content, but the evidence regarding the information content of U.S. GAAP-reconciled information is mixed. This study extends the literature by utilizing financial analysts' forecasts revisions as an alternative indicator of the effect of information presented by foreign firms. Additionally, this study investigates the influence of four firm-specific characteristics in the firm's information environment on positive revision activities (discussed later) at the time of filing Form 20-F. The four firm characteristics examined are the following: (1) similarities of accounting systems, (2) analyst following, (3) magnitude of the difference between reconciled earnings and foreign GAAP earnings, and (4)

dispersion of analysts' expectations. This study provides evidence of the impact of required financial reporting for foreign firms on financial analysts' revisions. The results have policymaking implications for U.S. securities regulation.

This paper is organized in the following manner. The next section reviews the prior literature, followed by Section 3 which defines the model variables, states the hypotheses, and describes the sample. A discussion of the results in Section 4 follows and a Summary section concludes the paper.

## 2. Prior literature

### *2.1. Information content of foreign GAAP and reconciled earnings*

Studies investigating the relation between foreign GAAP earnings and earnings reconciled to U.S. GAAP have generally employed a capital-markets methodology based on stock returns (prices) as a proxy for market expectations. These studies show that foreign GAAP earnings have information content; however, they report that the quantitative reconciliation in Form 20-F generally provides no significant information above that provided by the foreign GAAP earnings number (Amir, Harris, & Venuti, 1993; Bandyopadhyay, Hanna, & Richardson, 1994; Chan & Seow, 1996; Frost & Pownall, 1994; Meek, 1983; Pope & Rees, 1992). Exceptions to these findings suggest that the incremental information content for reconciled information may exist, may be a longer-term phenomenon, or may be country-specific (Barth & Clinch, 1996; McQueen, 1992; Rees, 1995).

The observed lack of value of the quantitative reconciliation in assessing abnormal returns may be a function of the ability of financial analysts to successfully perform pro forma reconciliations, thus preempting a disclosure effect (Fulkerson & Meek, 1998). This finding is especially true for firms from countries with accounting systems similar to the U.S. system. Value, however, is exhibited for firms with reporting systems dissimilar to U.S. GAAP (Fulkerson & Meek, 1998). Moreover, market participants may use a coping mechanism to interpret foreign GAAP earnings and thereby predict U.S. GAAP earnings by utilizing other sources of information before the release of a quantitative reconciliation (Gornik-Tomaszewski & Rozen, 1999).

The role of analysts in assessing relevant information has been established in the accounting and finance literature (Schipper, 1991). Specifically, analysts impound new information into their forecasts of earnings and into revisions of their earnings forecasts (Brown, Griffin, Hagerman, & Zmijewski, 1987; Chang, Most, & Brain, 1983; Fried & Givoly, 1982; Givoly, 1985; Imhoff & Lobo, 1984; Kim & Verrecchia, 1994). Therefore, it is logical to conclude that analysts would revise their original forecasts upon the release of both foreign GAAP earnings and earnings reconciled to U.S. GAAP if these releases contain relevant information. This study utilizes financial analysts' forecast revisions as an indicator of the effect of information presented by the firms in their foreign GAAP earnings and reconciled information in Form 20-F. If financial analysts revise their foreign GAAP earnings forecasts for the current period at the foreign earnings announcement date and at



the Form 20-F filing date, such revisions are indicative of relevant information from these events.

This study also investigates the influence of four firm-specific characteristics in the firm's information environment on positive abnormal revisions at the time of filing Form 20-F. The four firm-specific characteristics are: (1) similarities of accounting systems, (2) analyst following, (3) difference between reconciled earnings and foreign GAAP earnings, and (4) dispersion of analysts' expectations.

## *2.2. Firm-specific characteristics*

Accounting systems similarity has been characterized by numerous classification schemes (AlNajjar, 1986; DaCosta, Bourgeois, & Lawson, 1978; Douppnik, 1987; Frank, 1979; Mueller, 1968; Nair & Frank, 1980, 1981; Nobes, 1983). Ali and Hwang (2000) use the accounting classification scheme of Mueller, Gernon, and Meek (1994) to examine the measures of value of financial accounting data. Douppnik and Salter (1993) use cluster analysis to examine the relationship between contemporary clusters constructed using current accounting practices and those constructed using the underlying environmental factors that have been hypothesized as affecting a country's reporting system. Their study produced a global two-cluster classification—a macro-uniform grouping and a micro-based grouping of countries. Underlying environmental factors were found to differentiate the two groupings on the basis of differences in the legal system, language, and political heritage.

Financial reporting practices are the result of the interaction of a society's external environment, cultural norms, and institutional structures (Adhikari & Tondkar, 1992). Salter (1991) concluded that, in general, macro-uniform countries (1) employ less complex measurement rules, (2) use more conservative income calculation criteria, (3) tend to be code law countries that adhere to tax requirements for financial reporting, and (4) provide less disclosure than do micro-based countries. On the other hand, micro-based countries (1) rely primarily on practitioners and other nonlegislative sources to develop accounting principles, (2) tend to be less influenced by tax considerations, and (3) are more likely to provide supplementary disclosure.

It is not surprising, then, that countries with environmental factors similar to the United States, such as Australia, Canada, and the UK, use income measurements, recognition criteria, and asset valuation techniques similar to those used in the United States. Thus, reported earnings of firms from micro-based countries with similar environmental factors would be expected to contain information that is similar to that disclosed in the U.S. In contrast, macro-uniform countries, such as France, Germany, and Mexico, use different income measurements, recognition criteria, and asset valuation techniques than those used by micro-based countries, e.g., the U.S. in this case. The information contained in the reported earnings of firms from macro-uniform countries would be expected to contain information that is different from that reported by U.S. firms. Thus, it would be expected that information provided in Form 20-F for firms from macro-uniform countries would exhibit more utility to financial analysts than reconciled information for firms from micro-based countries.



Analysts' revisions are also expected to be affected by firm size (Meek, 1991). In general, the market weighs both foreign earnings and reconciled information more heavily for small firms than for large firms, possibly reflecting less information available in the market concerning these firms (McQueen, 1992). Apparently, earnings announcements and other reconciled information increase the amount of relevant information available for smaller firms.

In measuring firm size across countries, most studies use either assets or revenues as a proxy for firm size. However, in cross-country studies, the magnitude of assets can be affected by variations in different GAAP regimes (Meek, Roberts, & Gray, 1995). Although it is generally agreed that revenue recognition rules across countries are not as diverse as asset valuation rules, the use of revenue as a proxy for firm size still creates difficulties in cross-country studies. Since revenues are denominated in local currencies, it is necessary to select a common currency and justify a timely conversion rate (e.g., average, year-end, etc.) for comparative purposes. In order to avoid these measurement problems, this study uses the number of analysts following the firm as a proxy for firm size. Hereafter, we use analyst following rather than the term firm size. Bhushan (1989) reports that the number of analysts providing and processing information about a firm increases as firm size increases. Thus, we would expect that the information content in Form 20-F will have greater relevance when firms are followed by a smaller number of analysts.

We also expect that the magnitude of the difference between foreign GAAP earnings and reconciled earnings is relevant to financial statement users. Although Form 20-F includes a quantitative reconciliation to U.S. GAAP of net income, shareholders' equity, and earnings per share (SEC, Division of Corporation Finance, 1995), this study uses the difference between reconciled earnings and foreign GAAP earnings as a proxy for the supplemental information in Form 20-F. While this reconciliation difference has not been statistically associated with stock returns by most researchers (Amir et al., 1993; Bandyopadhyay et al., 1994; Meek, 1991), an association was noted by McQueen (1992) and Rees (1995). We would expect the magnitude of the earnings difference to reflect unexpected earnings not impounded into analysts' pro forma reconciliations. Thus, larger differences between foreign GAAP earnings and the reconciled earnings are expected to provide additional information to analysts.

Finally, we expect the information in Form 20-F to have greater relevance when analyst uncertainty exists. Stickel (1989) examines analysts' incentives for revisions of annual earnings near interim earnings announcements for U.S. firms. Among other things, he finds that revision activity increases if ex ante uncertainty of annual earnings is larger. A common measure of analyst uncertainty is the dispersion of analysts' expectations. Analysts are more likely to revise earnings estimates for firms with greater earnings variability (Bhushan, 1989). Earnings variability, then, is indicative of uncertainty for an analyst who provides earnings forecasts (Ajinkya, Atiase, & Gift, 1991; Comiskey, Walkling, & Weeks, 1987; Imhoff & Lobo, 1984). Thus, a high level of dispersion in consensus of earnings forecasts implies disagreement among forecasters. Based on the findings of these and similar studies, we expect Form 20-F information to have greater relevance in settings where greater analyst uncertainty exists.

In summary, we utilize analysts' forecasts revisions to assess the effect of information released in foreign GAAP earnings and information content of Form 20-F. Furthermore, we

posit that the relevance of the information presented in Form 20-F to analysts will be enhanced for firms with positive abnormal revisions under any of the following circumstances: (1) the degree of similarity between a firm's home reporting requirement and U.S. GAAP is low, (2) fewer analysts follow the firm, (3) the magnitude of the difference between U.S. GAAP reconciled earnings and foreign GAAP earnings is large, or (4) a greater general uncertainty exists concerning earnings forecasts.

### 3. Model variables, hypotheses, and sample selection

#### 3.1. *Revisions of analysts' forecasts*

This study investigates whether financial analysts revise their earnings forecasts at the foreign GAAP earnings announcement date and at the Form 20-F filing date. Exhibit 1 (Appendix A) shows the sequence of the two events initiated by management of a foreign firm and possible reactions by financial analysts. If financial analysts receive information that causes a change in their expectations about a firm, they are likely to revise their earnings forecasts. Therefore, if financial analysts revise their earnings forecast at the foreign earnings announcement date and at the Form 20-F filing date, such revisions would indicate relevant information from these events.

In event studies, analysts' revisions are defined as the difference in forecasts when comparing the post-event forecast to the pre-event forecast. If an analyst issues a forecast (in the event window) that is different from the prior forecast, the newly issued forecast is considered a revision of the prior forecast. To determine if analysts' revisions are affected by new information at event  $j$  (foreign GAAP earnings announcement) or event  $k$  (Form 20-F filing), a method similar to Stickel (1989) is used to define event periods and determine abnormal percentage revision. Event windows of 15 days ( $-1, +13$ ) are used to capture the reaction of each analyst following firm  $i$  to the two events, event  $j$  and event  $k$ . A nonevent period of 15 days ( $-26, -12$ ) occurs prior to event  $j$  after an exclusion window of 10 days to confine activity of the event period from the nonevent period. For event  $k$ , a nonevent period of 15 days ( $+24, +38$ ) occurs subsequent to event  $k$  after an exclusion window of 10 days to confine activity of the event period from the nonevent period.

The abnormal percentage revision measures the number of financial analysts revising their earnings forecast at event  $j$  or event  $k$ . The abnormal percentage revision is defined as the percentage revision in the event period minus the percentage revision in the nonevent period. The percentage revision for firm  $i$  in the event period is defined as the number of analysts revising their forecast for firm  $i$  divided by the number of analysts with an outstanding forecast for firm  $i$ , multiplied by 100. For the sake of brevity, throughout the remainder of this paper, use of the phrase "abnormal revision" will be construed to mean "abnormal percentage revision." The variable, abnormal revisions for firm  $i$  at event  $k$ , is defined as:

$$ABREV_{i(U.S. \text{ GAAP})} = REV_{ik} - REV_{i, \text{non-}k}$$



where

$$\begin{aligned} \text{REV}_{ik} &= \text{percentage revisions for firm } i \text{ at event } k \\ &= \frac{\text{Number of analysts revising their forecasts for firm } i \text{ at event } k}{\text{Number of analysts with outstanding forecast for firm } i \text{ at event } k} * 100 \end{aligned}$$

and

$$\text{REV}_{i,\text{non-}k} = \text{percentage revisions for firm } i \text{ at the nonevent period non-}k$$

If ABREV is positive, then we assume that significant revision activity has occurred. If ABREV is nonpositive, then we assume that the revision activity has not been significant because fewer analysts revised their forecasts in the event period than in the nonevent period. The measurement of  $\text{ABREV}_{i(\text{Foreign GAAP})}$  and  $\text{ABREV}_{i(\text{U.S. GAAP})}$  are identical; however, they are measured at different points in time. Only  $\text{ABREV}_{i(\text{U.S. GAAP})}$  is fully defined here.

With regard to the value of foreign GAAP earnings, consistent findings across prior research using earnings–returns models indicate evidence of information content in foreign earnings announcements. In this study, if abnormal revisions occur in the period surrounding the announcement date, it would suggest that the foreign earnings announcement had an effect on analysts' revisions. On the other hand, if abnormal revisions do not occur in the period surrounding the announcement date, then the absence of abnormal revisions may indicate that the foreign earnings announcement was not relevant for analysts. It is expected that abnormal revisions would be made around the announcement dates. (All hypotheses are stated in the alternative form.) Thus, it is hypothesized:

**Hypothesis 1:** Abnormal revisions around the announcement date of earnings prepared under foreign GAAP are positive.

With regard to the value of the reconciled information in Form 20-F, the results of prior earnings–returns research are mixed. This study examines whether reconciled information from Form 20-F is associated with abnormal revisions of financial analysts' earnings forecasts. Although reconciled information includes financial data other than earnings, i.e., stockholders' equity, only the reconciled earnings are used for the purpose of this study. If there is useful information in the reconciliation of foreign earnings to U.S. GAAP in Form 20-F, then analysts would be expected to revise their forecasts around the filing of Form 20-F. On the other hand, if there is no evidence that analysts revise their earnings forecasts at the time of filing Form 20-F, then it can be assumed that reconciled information has either been previously incorporated in the forecasts or it does not provide useful information to analysts. Although no prediction as to the expectation in Hypothesis 2 is made, the hypothesis follows the same form as that for abnormal revisions around the foreign GAAP earnings announcement date. Thus, it is hypothesized:

**Hypothesis 2:** Abnormal revisions around the time of filing Form 20-F are positive.



### 3.2. *Firm-specific variables*

The analysis in this study is twofold. First, Hypotheses 1 and 2 investigate whether analysts revise their forecasts at the two events under investigation. If positive abnormal revisions exist at the time of filing Form 20-F, then the second level of investigation is undertaken. The intent in examining the firm-specific hypotheses (Hypotheses 3.1–3.4) is to investigate if these variables (similarities of accounting systems, analyst following, difference between reconciled earnings and foreign GAAP earnings, and dispersion of analysts' expectations) are associated with positive abnormal revision activity. But if there are nonpositive abnormal revisions, then there is no reason to assume that there would be any association between analysts' revision activity to Form 20-F and any of the firm-specific variables.

#### 3.2.1. *Similarities of accounting systems*

In order to investigate the effect of differences across countries in terms of accounting systems on the abnormal revisions of analysts' forecasts at the time of filing Form 20-F, the country of the firm's domicile is partitioned according to the dichotomous classification scheme—macro-uniform and micro-based countries (Doupnik & Salter, 1993). As discussed earlier, one would expect that reconciled information in Form 20-F for firms from macro-uniform countries would provide more valuable information to U.S. analysts than the reconciled information from micro-based countries because of the dissimilarities of accounting measurement techniques and reporting systems between firms in macro-uniform countries and the U.S. (a micro-based country). On the other hand, reconciled information for firms from micro-based countries would be expected to provide less valuable information to U.S. analysts because of the similarities of the accounting measurement techniques and reporting systems among micro-based countries. Accordingly, U.S. analysts would be less likely to initiate revisions of their earnings forecasts when reconciled information is filed by firms from micro-based countries than macro-uniform countries. Thus, it is hypothesized:

**Hypothesis 3.1:** Among firms with positive abnormal revisions, the abnormal revision around the time of filing Form 20-F is greater for foreign firms from macro-uniform countries than micro-based countries.

A categorical independent variable is created to represent firms from micro-based and macro-uniform countries. Firms from macro-uniform countries are coded as 1; firms from micro-based countries are coded as 0. The source of the data is Salter's (1991) classification of reporting systems. The variable, similarities of accounting systems, is defined as:

SYSTEM = 1 (firm from macro – uniform country) or

0 (firm from micro – based country)

### 3.2.2. Analyst following

As stated earlier, in this study we use the number of analysts following the firm to proxy firm size. We expect that there is a direct relationship between analyst following and the amount of information disclosed by a firm. Prior research shows that as the analyst following increases, more information becomes available about the firm in the markets. If more information is available to analysts, then one would expect the earnings expectations of analysts to be less diffuse and more accurate, leading to fewer revisions. Thus, it is hypothesized:

**Hypothesis 3.2:** Among firms with positive abnormal revisions, the abnormal revision around the time of filing Form 20-F decreases with the number of analysts following the firm.

The variable, number of analysts following firm  $i$ , is defined as  $NOANA_i$ .

### 3.2.3. Difference between U.S. GAAP reconciled earnings and foreign GAAP earnings

Generally speaking, the reconciled earnings (net income) reported in Form 20-F will be a different amount than the earnings prepared in accordance with foreign GAAP and released at the earnings announcement date. The magnitude of the change in reconciled earnings may influence analysts' revisions. Prior earnings–returns studies examine a similar variable to determine its significance in explaining stock returns. Although Meek (1991) did not find the variable to be a significant explanatory variable, McQueen (1992) and Rees (1995) found that the change in reconciliation variable is significantly correlated with stock returns.

It is expected that the difference between earnings calculated in accordance with U.S. GAAP and foreign GAAP will be valuable information. Furthermore, the larger the difference, the more likely that the event will result in abnormal revisions. Thus, it is hypothesized:

**Hypothesis 3.3:** Among firms with positive abnormal revisions, the abnormal revision around the time of filing Form 20-F increases with the difference between reconciled earnings and foreign GAAP earnings.

The magnitude of difference will be measured as the percentage change in reconciled earnings from foreign GAAP earnings for each firm in each sample year. Net income data are collected directly from Form 20-F on *LEXIS-NEXIS* (1998). The variable, percentage difference in earnings between U.S. GAAP and foreign GAAP for firm  $i$ , is defined as:

$$RECNI_i = \frac{|\text{Net Income}_{i(\text{U.S. GAAP})} - \text{Net Income}_{i(\text{Foreign GAAP})}|}{\text{Net Income}_{i(\text{Foreign GAAP})}}$$

### 3.2.4. Dispersion of analysts' expectations

As discussed previously, a high level of dispersion in earnings forecasts implies disagreement among forecasters (Ajinkya et al., 1991; Comiskey et al., 1987). It is expected

that information released at the time of filing Form 20-F will reduce the information uncertainty to a greater extent for firms with a relatively higher dispersion of analysts' forecasts. Thus, it is hypothesized:

**Hypothesis 3.4:** Among firms with positive abnormal revisions, the abnormal revision around the time of filing Form 20-F increases with the amount of dispersion of analysts' expectations.

Dispersion of expectations is measured by the coefficient of variation for each firm, i.e., the standard deviation of analysts' forecasts divided by the mean forecast, in the period prior to filing Form 20-F (period  $k-v$ ). The source of the data for the period prior to the filing of Form 20-F is the Institutional Brokers Estimate System (I/B/E/S) International database.<sup>3</sup> The variable, dispersion of analysts' forecasts for firm  $i$ , is defined as:

$$DISP_i = \left[ \frac{\sum_{a=1}^n (FC_{ai,k-v} - \overline{FC}_{i,k-v})^2}{n-1} \right]^{\frac{1}{2}} / \overline{FC}_{i,k-v}$$

where  $FC_{ai,k-v}$  = annual forecast by analyst  $a$  for firm  $i$  in period  $k-v$ ;  $\overline{FC}_{i,k-v} = \frac{\sum_{a=1}^n (FC_{ai,k-v})}{n}$ ;

$n$  = number of analysts' forecasts for firm  $i$ .

### 3.3. Sample selection

A list of foreign firms registered with and reporting to the SEC during the sample period January 1, 1988, to December 31, 1995, was extracted from *LEXIS-NEXIS* (1998). Because the focus of this study is the financial reporting information of foreign firms, it is necessary for the selected foreign firms to use foreign GAAP (non-U.S. GAAP) in preparing financial statements. Thus, the following three types of firms are excluded from the sample:

1. Foreign firms that use U.S. GAAP in preparing their financial statements.
2. Foreign firms that use International Accounting Standards (IAS) in preparing their financial statements.
3. Canadian firms. This is due to the fact that Canadian accounting practices are very similar to U.S. GAAP.

The period of this study includes years prior and subsequent to the Comparability/Improvements Project of the International Accounting Standards Committee (IASC). Prior

<sup>3</sup> The Institutional Brokers Estimate System (I/B/E/S) is a service of I/B/E/S International. The data has been provided as part of a broad academic program to encourage earnings expectations research.



to the project, a number of acceptable alternatives for similar economic circumstances were allowed for the preparation of financial statements. Subsequent to the project, the number of acceptable alternatives was significantly reduced. Due to the changing nature of IAS during the period of this study, firms using IAS are excluded.

In addition to the changing nature of IAS, serious concerns have been raised in the accounting literature about noncompliance with IAS by firms that claim full compliance. Even where compliance with all or most IAS was indicated in the accounting policy footnotes and/or audit opinion, notable examples of noncompliance were found with the measurement and disclosure requirements of individual IAS in practice (Street, Gray, & Bryant, 1999). Moreover, noncompliance with IAS presents significant methodological implications when examining the effect of reconciliations from IAS to U.S. GAAP. Street, Nichols, and Gray (2000) find that several sample companies appear to be violating IAS, necessitating adjustments to IAS income. Thus, firms using IAS are excluded from the sample.

Similarly, Canadian firms are also excluded from the sample based on the results of prior research. Bandyopadhyay et al. (1994) sampled 96 Canadian firms for the period 1983–1989 and found no significant association between reconciled information from Canadian GAAP to U.S. GAAP and stock returns. In addition, Barth and Clinch (1996) investigated differences between non-U.S. and U.S. GAAP earnings–returns association tests on reconciliation items for UK, Australian, and Canadian firms. The results indicate that the quantitative reconciliation required in Form 20-F is correlated with information used by investors in establishing prices for UK and Australian firms, but not for Canadian firms.

Moreover, elimination of Canadian firms was also based on the fact that the SEC has long recognized that Canadian accounting practices are very similar to U.S. GAAP. A mutual recognition policy (multijurisdictional disclosure system [MJDS]) between the SEC and Canada's Ontario Securities Commission allowed certain Canadian firms to list on U.S. exchanges by providing registration documents filed on their home exchanges. Based on the prior research and the SEC's decision, we believe that elimination of Canadian firms is justified.

Additionally, for inclusion in the sample, a foreign firm must be followed by at least two U.S. analysts contributing forecasts to the I/B/E/S database. Applying this I/B/E/S filter results in 76 firms and 343 firm-years. Information concerning sample firms (e.g., company name, country of domicile, and type of accounting system) are presented in Exhibit 2 (Appendix B) and Exhibit 3 (Appendix C).

The study investigates revisions of U.S. analysts' earnings forecasts upon the release of foreign GAAP earnings. In order to examine individual analyst's revisions, the study uses information provided by I/B/E/S (International edition) database to identify revisions (point estimates and dates) of earnings forecasts of individual U.S. analysts, analyst following, and dispersion of analysts' forecasts.

Two event dates of interest in this study are the earnings announcement date and the 20-F filing date. With regard to the earnings announcement date, all previous studies examining similar research questions have used the earnings announcement date available from the *Wall*

*Street Journal Index*. This study uses the *Wall Street Journal Index* as well. Identifying the date when the information in the Form 20-F becomes public knowledge is generally agreed upon as the date of filing Form 20-F. SEC documents from *LEXIS-NEXIS* (1998) include the date of filing Form 20-F.<sup>4</sup>

#### 4. Discussion of results

In order to determine if positive abnormal revisions occur around the announcement date of foreign GAAP earnings and Form 20-F filing date, an increase in revisions in the event period relative to the nonevent period is compared using a test of means and a Wilcoxon signed ranks test. Data regarding analysts' revisions are presented in Table 1. Due to the lack of publication of foreign GAAP earnings announcements by some firms, the sample size at the foreign GAAP earnings announcement date was reduced from 343 to 160. As hypothesized, the abnormal revisions around the announcement date of earnings prepared under foreign GAAP are positive and statistically significant ( $P < .0001$ ) as indicated by the results of the test of means. Approximately 28% of U.S. analysts following foreign firms revise their forecasts during the event period (earnings announcement date) compared to 14% who revise their forecasts in the nonevent period. This suggests that the release of firms' earnings prepared under foreign GAAP contains relevant information for analysts. The Wilcoxon signed ranks test uses the median revisions and yields similar results, i.e., abnormal revisions around the foreign GAAP earnings announcement date are positive and statistically significant ( $P < .0001$ ). This finding regarding the foreign earnings announcement supports the results of prior research using an earnings–returns model, indicating that foreign GAAP earnings is value-relevant (Chan & Seow, 1996; Fulkerson & Meek, 1998; McQueen, 1992; Meek, 1983).

Testing the same hypothesis at the time of filing Form 20-F for 343 available firm-year observations yields similar results. As indicated in Table 1, the posited relationship is supported by the statistically significant results of both the test of means and the Wilcoxon signed ranks test ( $P < .0001$ ). Approximately 19% of U.S. analysts following foreign firms revise their earnings forecast during the event period (filing Form 20-F) compared to approximately 12% who revise their forecasts during the nonevent period. The Wilcoxon signed ranks test uses the median percentage revisions and yields similar results. Thus, the filing of Form 20-F appears to provide relevant information to analysts. This finding is consistent with the results of several studies that utilize earnings–returns models to examine the information content of reconciled earnings (Barth & Clinch, 1996; McQueen, 1992; Rees, 1995). As discussed earlier, four firm-specific variables, namely, (1) similarities of accounting systems, (2) number of analysts following the firm, (3) change in reconciled earnings, and (4) dispersion of analysts' forecasts, are posited to also be

<sup>4</sup> In cases when the firm files its annual report, including reconciled information, with the SEC before filing Form 20-F, then filing of the annual report was assumed to be the date the reconciled information became public knowledge.



Table 1

Revisions around foreign earnings announcement date and around filing of Form 20-F

	Revisions around earnings announcement (Days -1 to +13)	Revisions around filing of Form 20-F (Days -1 to +13)
<i>Test of means</i>		
Mean revisions (%)	27.88 <sup>a</sup>	19.44 <sup>b</sup>
<i>t</i> statistic	6.56*	5.42*
<i>n</i>	160	343
<i>Wilcoxon signed ranks test</i>		
Median revisions (%)	25.00 <sup>c</sup>	14.28 <sup>d</sup>
Z score	6.022*	4.92*
<i>n</i>	160	343

<sup>a</sup> Mean revisions (14%) in nonevent period (Days -26, -12).<sup>b</sup> Mean revisions (12%) in nonevent period (Days +24, +38).<sup>c</sup> Median revisions (11%) in nonevent period.<sup>d</sup> Median revisions (0%) in nonevent period.\*  $P < .0001$  (one-tailed test).

associated with analysts' revisions at the time of filing Form 20-F. We examined the relation between positive abnormal revisions and the four firm-specific variables using a two-stage process.

First, we regressed the magnitude of analysts' revisions on these variables at the Form 20-F filing date. Since our sample includes many different currencies, we used the percentage forecast revision to standardize. We included all analyst revision observations whether or not the firm-year observation showed positive abnormal revisions. Our second stage of the process examines only those firm-year observations with positive abnormal revisions, i.e., firm-years in which the percentage of analysts revising in the event period exceeds the percentage of analysts revising in the nonevent period. In this stage, we regressed the positive abnormal revisions on the four firm-specific variables at the Form 20-F filing date.

Table 2 presents descriptive statistics for the dependent variable, absolute percent revision magnitude (hereafter referred to as REVMAG), and four independent variables examined in the regression. The percent revision magnitude is defined as the analyst's forecast prior to the revision minus the revised forecast (in the event period) divided by the forecast prior to the revision. Using 347 observations of revision magnitude, the absolute mean revision was 10%. In addition to the descriptive statistics, Table 2 also documents a significant relation between analyst revision magnitude and analyst uncertainty (dispersion of analysts' forecasts) at the Form 20-F date, which supports Hypothesis 3.4. However, our other hypotheses were not supported for the entire sample of analysts' revisions. We posit that this effect may occur in situations where the Form 20-F offers little relevant new information beyond that already offered to the markets through alternative sources. Thus, information provided by Form 20-F has already been impounded into analysts' forecasts by the Form 20-F date for some firms.



Table 2  
OLS regression results

Revision magnitude on firm-specific variables					
$REVMAG = \beta_0 + \beta_1 SYSTEM - \beta_2 NOANA + \beta_3 RECNI + \beta_4 DISP + \epsilon$					
	Intercept	SYSTEM	NOANA	RECNI	DISP
Hypothesis		H3.1	H3.2	H3.3	H3.4
Expected sign		+	–	+	+
Coefficient	0.074	– 0.021	0.001	0.031	0.119
<i>t</i> Statistic	2.95*	– 0.76	0.01	1.29	6.39**
Descriptive statistics for the regression variables					
Variable	<i>n</i>	Mean	Standard deviation	Minimum	Maximum
REVMAG	347	0.10	0.18	0	1.28
SYSTEM	347	0.12	0.33	0	1
NOANA	347	7.06	2.93	2	18
RECNI	347	0.29	0.39	0	3.99
DISP	347	0.18	0.49	0	3.87

*F* value = 12.32 (Prob > *F* = .0001); *R*<sup>2</sup> = .126; Adjusted *R*<sup>2</sup> = .116; *n* = 347.

REVMAG = absolute percent revision magnitude at event period.

SYSTEM = 0 if the firm is from a micro-based country and 1 if the firm is from a macro-uniform country.

NOANA = analyst following.

RECNI = difference between U.S. GAAP reconciled earnings and foreign GAAP earnings.

DISP = coefficient of variation in period prior to Form 20-F filing.

\* One-tailed *P* values: *P* < .05.

\*\* One-tailed *P* values: *P* < .001.

Of interest to the current study is the effect of Form 20-F information which is new to the markets. We can infer the effect of the Form 20-F disclosure in providing “new” information by examining only those instances where analysts substantively revised their forecasts at the Form 20-F date and to a greater extent than analyst revisions during the nonevent period. Of the 343 firm-year observations available, 142 showed positive abnormal revisions. The remaining 201 observations showed nonpositive abnormal revisions, e.g., instances where the percentage revisions in the event period were either less than or equal to the percentage revisions in the nonevent period. We describe this level of revision activity as nonpositive abnormal revisions.<sup>5</sup>

Table 3 presents descriptive statistics for the dependent variable, abnormal revisions, and four independent variables examined in the second regression. Based on 142 firm-year

<sup>5</sup> A logistic regression on the full sample of 343 observations results in no significant effects on the independent variables. In this study, we limit our investigation of the four firm-specific variables to only positive abnormal revisions to determine whether the firm-specific variables played a significant role in the amount of revision activity of the analysts. If the analysts did not revise their forecasts at a level to qualify as a positive abnormal revision, then there is no reason to assume that there would be any association between the firm-specific variables and their decision to revise.

Table 3  
OLS regression results

Positive abnormal revisions on firm-specific variables

$$ABREV_{U.S. GAAP} = \beta_0 + \beta_1 SYSTEM - \beta_2 NOANA + \beta_3 RECNI + \beta_4 DISP + \varepsilon$$

	Intercept	SYSTEM	NOANA	RECNI	DISP
Hypothesis		H3.1	H3.2	H3.3	H3.4
Expected sign		+	–	+	+
Coefficient	37.104	– 2.549	– 1.663	7.743	6.744
<i>t</i> statistic	8.894**	– 0.551	– 3.199**	2.164*	2.335*

Descriptive statistics for the regression variables

Variable	<i>n</i>	Mean	Standard deviation	Minimum	Maximum
ABREV	142	29.65	19.02	5.88	100
SYSTEM	142	0.12	0.33	0	1
NOANA	142	6.61	2.93	2	18
RECNI	142	0.33	0.43	0	2.35
DISP	142	0.20	0.53	0	3.87

*F* value = 6.36 (Prob > *F* = .0001); *R*<sup>2</sup> = .157; Adjusted *R*<sup>2</sup> = .132; *n* = 142.

ABREV = abnormal positive revisions (percentage revisions at event period less percentage revisions at nonevent period).

SYSTEM = 0 if the firm is from a micro-based country and 1 if the firm is from a macro-uniform country.

NOANA = analyst following.

RECNI = difference between U.S. GAAP reconciled earnings and foreign GAAP earnings.

DISP = coefficient of variation in period prior to Form 20-F filing.

\* One-tailed *P* values: *P* < .05.

\*\* One-tailed *P* values: *P* < .001.

observations, each variable exhibits some degree of skewness, a condition which Box–Cox transformations significantly reduce. The abnormal revisions were approximately 30%, indicating that 30% more financial analysts revised their forecasts in the event period than in the nonevent period. Additional descriptions of the variables are shown in Exhibit 4 (Appendix D).

Table 3 also shows the results of the regression model for firms with positive abnormal revisions and provides support for 3.2–3.4.<sup>6</sup> As expected, the coefficient for analyst

<sup>6</sup> The following three data diagnostics tests were performed.

- A matrix of correlations between estimated regression coefficients indicated that multicollinearity is not an issue of concern in the model.
- Skewness–kurtosis tests for normality indicate that all of the variables appear significantly nonnormal for either skewness, kurtosis, or for both considered jointly.
- Results of the Cook–Weisberg test showed significant heteroscedasticity, which may be due, in part, to the lower bound of a positive number for the dependent variable (Hamilton, 1998). Box–Cox transformations are often employed to change distributions' shapes, with the aim of making skewed distributions more symmetrical, and thereby more nearly normal (Hamilton, 1998) and/or to correct for heteroscedasticity (Neter, Wasserman, & Kutner, 1990). Results of an OLS regression are reported in Table 3, although both transformed and untransformed data yield similar results.

following, NOANA (Hypothesis 3.2), is negatively related to abnormal revisions, indicating that abnormal revisions are associated with firms followed by fewer analysts. The  $P$  value for NOANA is significant at the  $P < .001$  level. Thus, Hypothesis 3.2 is supported by the results of the model. Generally speaking, throughout the year, firms followed by fewer analysts disclose less information than firms followed by more analysts. Thus, the information in Form 20-F is more relevant for those firms followed by fewer analysts. Regression results are unchanged if we replace analyst following with revenues measured in U.S. dollars. This result is consistent with findings of prior studies using firm size as a firm-specific variable in earnings–returns models (McQueen, 1992; Meek, 1991).

For the reconciled income variable, RECNI (Hypothesis 3.3), it is hypothesized that the larger the difference between the reconciled and foreign GAAP earnings, the greater the abnormal revisions around the filing of Form 20-F. The results of the regression model indicate that RECNI is significant at the  $P < .05$  level and is positively related to abnormal revisions. The sign of the coefficient is in the predicted direction, providing support for Hypothesis 3.3. The results suggest that larger differences between foreign GAAP earnings and reconciled earnings provide additional information to analysts. This finding is consistent with the results reported by McQueen (1992) and Rees (1995).

The posited relationship between the dispersion variable, DISP (Hypothesis 3.4), and abnormal revisions is noted in Table 3 and is statistically significant at the  $P < .05$  level. The positive sign indicates that a larger dispersion of expectations by analysts is associated with abnormal revisions around the time of filing Form 20-F. The results provide support for Hypothesis 3.4. Filing Form 20-F may reduce the information uncertainty to a greater extent for firms with a relatively higher dispersion of expectations.

The remaining independent variable, SYSTEM (Hypothesis 3.1), is not statistically significant at the  $P < .05$  level. The sample of firms from macro-uniform countries (17 firms) may be too small to discover significant differences. Furthermore, another possible explanation could be that the dichotomous classification—macro-uniform and micro-based groupings—might not be a suitable proxy to capture differences in accounting systems.

## 5. Summary

As equity markets around the world become more integrated, the SEC is faced with the difficult task of protecting U.S. investors while maintaining the preeminence of U.S. capital markets. In order to ensure that foreign issuers are held to substantially the same financial reporting standards as U.S. issuers, the SEC requires foreign issuers to provide a quantitative reconciliation of certain financial information from foreign GAAP to U.S. GAAP. The requirement for reconciliation implies that the reconciliation provides the user



with additional useful information over and above that provided by financial statements prepared using foreign GAAP.

This study uses analysts' revision activity to determine if foreign earnings and reconciled information in Form 20-F have an effect on revisions. The results indicate that abnormal revisions around the announcement date of earnings prepared under foreign GAAP and around the filing of Form 20-F are significant and in the predicted direction. This suggests that both foreign earnings information and reconciled information in Form 20-F have incremental information for U.S. financial analysts.

This study also examines four firm-specific variables in the firm's information environment—similarities of accounting systems, analyst following, magnitude in the change in reconciled earnings, and dispersion of analysts' forecasts—to determine if they are systematically associated with firms with positive abnormal revisions around the time of filing Form 20-F. Our findings suggest that in situations where Form 20-F is presumed to offer "new" information, i.e., firms with positive abnormal revisions, three of the four firm-specific variables are significant and in the predicted direction. Only the firm-specific characteristic, similarities of accounting systems, is not statistically significant.

For the variable, analyst following, the results indicate that there is an association between a foreign firm with a relatively smaller analyst following and a greater level of change in revision activity. For the reconciled income variable, the results indicate that there is an association between a relatively larger difference in the change from foreign GAAP earnings to reconciled earnings and a greater level of change in revision activity. For the dispersion variable, the results suggest that there is a similar association between a relatively greater dispersion of analysts' expectations and a greater level of change in revision activity around the time of filing Form 20-F.

The results do not support the variable concerning the similarities of accounting systems. One possible explanation is that the dichotomous classification—macro-uniform and micro-based groupings—might not be a suitable proxy to capture differences in accounting systems. Also, the sample of firms from macro-uniform countries may be too small to find significance even if it were to exist.

The primary limitation to be considered in interpreting the results of this study is the possibility of omission of certain variables which is a common concern in the design of event studies like this one. Although researchers attempt to capture the reaction to a single event in the marketplace, potentially confounding events may be responsible, at least in part, for the observed reaction. This limitation is potentially more problematic in international accounting research. Although the study measures reactions of U.S. analysts to information releases in U.S. markets, the U.S. is a secondary marketplace for foreign firms. Therefore, events which may not otherwise affect the U.S. environment may account for the reactions being measured. Examples include national, political, or economic factors/events. Notwithstanding these limitations, this study provides further insight into the continuing controversy concerning the SEC's financial reporting requirements for foreign firms.

**Exhibit 1 (Appendix A)****A.1. Sequence of events: Announcements by management and possible analyst reactions**

<u>Announcement (event <i>j</i>):</u>	<u>Announcement (event <i>k</i>):</u>
19X0 foreign GAAP earnings announcement	19X0 Form 20-F reconciliation to U.S. GAAP
12-31-X0	12-31-X1
<hr/>	
<u>Possible analyst reaction:</u>	<u>Possible analyst reaction:</u>
Information content may precipitate a forecast revision for 19X1	Incremental information content in Form 20-F may precipitate a forecast revision for 19X1

**Exhibit 2 (Appendix B)****B.1. List of sample firms**

ADT Limited	National Westminster Bank
Aegon NV	News Corporation Ltd.
Akzo Nobel NV	NFC PLC
Allied Irish Banks PLC	Novo Nordisk AS
Atlas Consolidated Mining and Development	Pacific Dunlop Ltd.
Banco Bilbao Vizcaya SA	Philippine Long Distance Telephone Co.
Barclays PLC	Philips NV
Bass PLC	Polygram NV
Beazer PLC	Portugal Telecom SA
Benetton Group SPA	Powergen PLC
Bet PLC	Racal Telecom
British Airways PLC	Ratners Group PLC
British Gas PLC	Rauma Corporation
British Petroleum Co. PLC	Reed International PLC
British Steel PLC	REPSOL SA
British Telecommunications PLC	Reuters Group PLC
Broken Hill Proprietary Co. Ltd.	Royal Bank of Scotland Group PLC
Cable & Wireless PLC	RTZ Corporation PLC
Cadbury Schweppes PLC	Saatchi & Saatchi Co. PLC
Carlton Communications PLC	Saga Petroleum AS
Coles Myer Ltd.	SKF Incorporated
CRH PLC	SmithKline Beecham PLC
Daimler Benz AG	Telefonica de Espana SA

**Exhibit 2 (Appendix B) (continued)**

Elsevier NV	Tele Danmark AS
English China Clays PLC	Tomkins PLC
Enterprise Oil PLC	Total
Ericsson Telephone Co.	Unilever PLC
FAI Insurances Ltd.	Unilever NV
Glaxo Holdings PLC	Vodafone Group PLC
Grand Metropolitan PLC	Volvo Corporation
Hafslund	Willis Corroon Group PLC
Hanson PLC	Westpac Banking Corporation
Hong Kong Telecommunications Ltd.	Western Mining Corporation Holdings
Imperial Chemical Industries PLC	WPP Groups PLC
INVERSCO PLC	YPF SA
KLM Royal Dutch Airlines	Zeneca Group PLC
Korea Electric Power Corp.	
Lasmo PLC	
Medeva PLC	
National Power PLC	

**Exhibit 3 (Appendix C)****C.1. Sample firms by country, classification system, and analyst following**

	Sample firms		Mean U.S. analyst following
	Number	%	
<i>Country (micro-based)</i>			
UK	42	55.3	5.6
Netherlands	7	9.2	9.2
Australia	5	6.6	3.6
Ireland	2	2.6	9.2
Philippines	2	2.6	2.6
Hong Kong	1	1.3	8.0
Firms from micro-based countries	59	77.6	6.0 <sup>a</sup>
<i>Country (macro-uniform)</i>			
Sweden	3	3.9	6.1
Spain	3	3.9	8.6
Norway	2	2.6	7.0
Denmark	2	2.6	6.1
Argentina	1	1.3	2.0
Finland	1	1.3	2.0
France	1	1.3	6.3
Germany	1	1.3	14.0
Italy	1	1.3	5.0
Republic of Korea	1	1.3	2.5



**Exhibit 3 (Appendix C) (continued)**

	Sample firms		Mean U.S. analyst following
	Number	%	
<i>Country (macro-uniform)</i>			
Portugal	1	1.3	2.0
Firms from macro-uniform countries	17	22.1	6.4 <sup>a</sup>
Total sample firms	76	100 <sup>b</sup>	6.1 <sup>a</sup>

<sup>a</sup> Weighted by number of observations (343).<sup>b</sup> Difference due to rounding.**Exhibit 4 (Appendix D)****D.1. Sample firms by country, classification system, and values of firm-specific variables and positive abnormal revisions regression model (n=142)**

	Sample firms		NOANA	RECNI	DISP	ABREV
	Number	%				
<i>Country (micro-based)</i>						
UK	37	56.9	6.3	0.379	0.203	32.9
Netherlands	7	10.8	8.8	0.177	0.299	18.5
Australia	4	6.2	4.8	0.269	0.093	31.7
Ireland	2	3.1	8.7	0.030	0.078	19.0
Philippines	2	3.1	2.5	0.398	0.316	41.7
Hong Kong	1	1.5	8.5	0.065	0.026	21.2
Firms from micro-based countries	53	81.6	6.7 <sup>a</sup>	0.322 <sup>a</sup>	0.208 <sup>a</sup>	29.8 <sup>a</sup>
<i>Country (macro-uniform)</i>						
Sweden	3	4.6	4.8	0.933	0.186	36.5
Spain	2	3.1	9.3	0.383	0.078	24.2
Norway	2	3.1	8.0	0.056	0.111	40.0
Denmark	1	1.5	6.0	0.188	0.031	22.6
Argentina	1	1.5	2.0	0.020	0.026	33.3
Finland	1	1.5	2.0	0.010	0.030	12.5
France	1	1.5	5.0	0.049	0.070	16.7
Republic of Korea	1	1.5	2.0	0.580	0.164	33.3
Firms from macro-uniform countries	12	18.3	5.6 <sup>a</sup>	0.377 <sup>a</sup>	0.095 <sup>a</sup>	28.5 <sup>a</sup>
Total sample firms for regression model	65	100 <sup>b</sup>	6.6 <sup>a</sup>	0.328 <sup>a</sup>	0.195 <sup>a</sup>	29.7 <sup>a</sup>

NOANA = analyst following.

RECNI = difference between U.S. GAAP reconciled earnings and foreign GAAP earnings.

DISP = coefficient of variation in period prior to Form 20-F filing.

ABREV = abnormal positive revisions (percentage revisions at event period less percentage revisions at nonevent period).

<sup>a</sup> Weighted by number of observations (142).<sup>b</sup> Difference due to rounding.

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# On the myth of “Anglo-Saxon” financial accounting: a comment

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## **Abstract**

Alexander and Archer (AA) in this journal suggest that the existence of Anglo-Saxon accounting (ASA) is a myth. They identify four hypotheses that might be thought to underpin ASA and seek to show that they are false. This comment suggests that two of the hypotheses are not central to AA's definition of ASA, and that the other two are more complex but do contain some support for the existence of ASA. More importantly, strong support for the existence of ASA can be found elsewhere in similar conceptual approaches and accounting practices and in international cooperation. It is suggested that the identification of ASA does have explanatory and predictive power for recent and forthcoming international developments.

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*Keywords:* Anglo-Saxon; Financial reporting; Myth; IASC

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## **1. Introduction**

Alexander and Archer (2000) in a clear and interesting paper seek to establish that the existence of Anglo-Saxon accounting (ASA) is a myth in the sense of “similar conceptual and technical approaches, but also a hegemonic alliance in the international politics of accounting regulation” (p. 539). As they say (pp. 541–543), the concept of ASA is well established in the literature. Therefore, their claim, if founded, is a major one.

Alexander and Archer (hereafter AA) identify four hypotheses that might be thought to support the existence of ASA but conclude that there is no support. This comment asks whether the four hypotheses are relevant to AA's claims and, if so, whether AA prove the lack

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of support for the existence of ASA. It is useful to distinguish between conceptual approaches, accounting practices, international alliances, and regulatory systems. For the first three, it is suggested here that ASA does exist.

AA also discuss the politics of the International Accounting Standards Committee (IASC). Contrary to AA's claim (p. 533), this comment suggests that the identification of ASA does help to explain the IASC's past and to predict its future.

## **2. Similarities and differences**

The identification of a group of similar objects only gains relevance in the context of a wider classification. Thus, ASA could only be a useful category when put in the context of other accounting systems. AA (p. 541) sensibly begin their analysis in the context of broader classifications. However, they then concentrate almost exclusively on two countries (the United Kingdom and the United States). To show that there are differences between the two countries does not tell us whether or not the two can usefully be seen as members of the same group. There are generally differences between members of a group. The question is whether the group members share features in a way that distinguishes them from members of other groups. On the subject of similarities between things, Wittgenstein (1953) notes:

...we see a complicated network of similarities overlapping and criss-crossing: sometimes overall similarities, sometimes similarities of detail ... I can think of no better expression to characterize these similarities than "family resemblances"; for the various resemblances between members of a family: build, features, colour of eyes, gait, temperament, etc. etc. overlap and criss-cross in the same way. (paragraphs 66 and 67)

In order to assess the existence of ASA, it is necessary to see whether the differences between members of the proposed group are dwarfed by differences between the shared pool of group traits and the traits of individuals outside the group. For this, it would be necessary to study other proposed groups, and also preferably more than two members of the ASA group.

## **3. AA's hypotheses**

Although concentrating on two members in a proposed group is not sufficient, it can be part of assessing the existence of the group. In this context, AA's four hypotheses are now examined. For each, it will be noted whether they seem to concern conceptual approaches, accounting practices, international alliances, or regulatory systems. It is suggested here that the last of these four is not central to the definition of ASA, and is indeed omitted from AA's initial definition (p. 539). That is, companies from two countries might practice very similar accounting even if their regulatory systems are noticeably different. Similarly, two sets of companies in the same country might use similar accounting practices even though they are subject to different regulatory systems. For example, United States generally accepted

accounting principles are used by many European companies that are not within the regulatory control of the Securities and Exchange Commission (SEC), and also by many United States companies that are not SEC-registered and have no auditing or reporting requirements.

### 3.1. True and fair view (TFV)/fair presentation (FP)

AA seek to show that there are more differences than similarities in Anglo-Saxon countries (particularly the United Kingdom and the United States) under this heading. I think that AA and I agree on the following:

- (i) There is a TFV or FP requirement for preparers and auditors in both the UK and the US.
- (ii) The TFV does not mean in practice the same thing as FP.
- (iii) There is an override in the United Kingdom but not in the United States.

Two expansions of these points need to be made here. First, although the TFV is a legal requirement for preparers in the United Kingdom (with no equivalent legal requirement in the United States), this requirement is generally fulfilled by complying with standards (Arden, 1993). Secondly, the override in the United Kingdom is mainly used now by the standard setters (and then preparers and auditors) to enable standards to override the law (Alexander, 1999; Nobes, 2000). In this sense, the override is not needed in the United States because there is no accounting law. Consequently, the UK/US differences are less important in practice than in concept.

I disagree with AA that the United States is different from the United Kingdom because "there is no requirement that any U.S. standard-setting body should use the FP criterion" (p. 548). AA try to support this suggestion with two published references (p. 549). First there is Zeff (1995), but he talks of auditors, preparers, and the regulators (the SEC) not the standard setters (the FASB). Secondly, they refer to the U.S. position during the IAS 1 discussions, but again there is no mention of the standard setter in this section of their paper. The U.S. member of the IASC Board was the AICPA and their reference is to the SEC. Although the FASB might agree with the AICPA and the SEC, the U.S. opposition to IAS 1 was, as AA make clear, concerned with the override not with the use of FP by preparers, auditors, or standard setters.

In sum, AA offer no evidence concerning the FASB and FP. The FASB's Statements of Financial Accounting Concepts refer to such notions as understandability, relevance, and representational faithfulness which are said by the IASC's *Framework* (paragraph 46) to lead to TFV/FP. The criterion is sufficiently vague that absence of the exact words in the U.S. framework does not tell us that the content is different in substance from the IASC or U.K. frameworks. There is no U.S. requirement in law concerning use by standard setters of FP because, as noted above, there is no direct equivalent of the Companies Act in the United States. The situation seems little different from the United Kingdom, where the ASB is not directly given instructions by law. It operates (as does the FASB) by reference to its own framework and to the requirements for TFV/FP imposed on preparers or auditors. It would be



easy, in both countries, to find cases where the TFV/FP criterion seems to have been overcome by politics or other factors, but that is not the same as saying that it is not required to be used by standard setters.

If we are to identify a relevant TFV/FP feature that distinguishes ASA, it would not be the override (which, as in the United States, is now little used<sup>1</sup> by listed companies in the United Kingdom except to comply with standards); nor would it be any general use of TFV by preparers (because, as in the United States, it seems of little importance to them in practice in the United Kingdom; Nobes & Parker, 1991). Of course, versions of the TFV and the override have been exported to many continental European countries (Aisbitt & Nobes, 2001; Nobes, 1993), so a TFV requirement for preparers or auditors can now hardly be seen as a defining feature of ASA. The distinguishing feature of ASA would be the general purpose of financial statements according to the standard setters. This takes us to the second hypothesis.

### 3.2. *Conceptual frameworks*<sup>1</sup>

AA seem to be arguing here that, although the ASA countries share a propensity to develop frameworks, there are two myths: (i) self-regulation, and (ii) actual use of the frameworks. The first point is taken up again in Section 3.4 (below). As for use by the standard setters of the frameworks, my own lengthy experience on two standard-setting bodies<sup>2</sup> is of very extensive use of the frameworks (in draft or otherwise). In standard-setting discussions, references to the purpose of accounting and to the definitions of “asset” and “liability” are continual. The main relevant point here is that the ASA standard setters closely share these purposes and definitions, but that these differ for continental European rule-makers. As noted earlier, I agree with AA (p. 549) that frameworks are not always complied with by the standard setters, a point discussed elsewhere (Nobes, 2000, p. 311).

A relevant body, not mentioned by AA, is the “G4 + 1” group of standard setters which operated from 1992 until early 2001. It comprised the standard setters from exactly the countries that AA identify (p. 539) as ASA countries.<sup>3</sup> Why did these standard setters bother to meet, and why did they not invite non-ASA standard setters? It was because they all (including the IASC)<sup>4</sup> shared a conceptual framework and that they wanted to move faster than the IASC Board (some of whose countries did not share the framework). In other words, there is evidence of “similar conceptual and technical approaches” in ASA (part of the definition of ASA in AA, p. 539). This is considered further later.

<sup>1</sup> See, for example, AA's Fig. 2 (p. 548). Most of the departures are to enable compliance with SSAP 19 on investment properties.

<sup>2</sup> The Accounting Standards Committee of the United Kingdom and Ireland (1987–1990), and the IASC (1993–2001). In the case of the former committee, the U.S. framework was occasionally referred to and the IASC's framework was formally noted on its release.

<sup>3</sup> The United Kingdom (which also covers standard setting for Ireland), the United States, Canada, Australia, and New Zealand, with IASC staff (the “+1”) as observers.

<sup>4</sup> The staff of the IASC (observers at G4 + 1) were accustomed to arguing on the basis of the *Framework*, even if some board members were not.



### 3.3. *Codified versus common law*

The relationship of common law and ASA is discussed only briefly by AA, but I agree with them in principle that causality is not proven. Elsewhere, more detailed treatments see some relevance in the association (e.g., La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1997; Nobes, 1998a; Nobes & Roberts, 2000). However, for the purposes of this comment, no more need be said because this is an issue of ASA regulatory systems which is not central to AA's theme of conceptual/technical approaches and hegemonic alliances.

### 3.4. *How private-sector is U.S. regulation?*

AA's treatment of this feature overlaps with the second feature (Section 3.2). I can agree with their conclusion that government bodies may have a stronger influence in the United States than in the United Kingdom. However, this is again about the peripheral issue of regulatory systems.

### 3.5. *Summary so far*

AA have illustrated that certain features related to regulatory systems differ among ASA countries. However, this is not central to the existence or otherwise of ASA as defined. They have also shown that TFV and FP are different and so is the override, although this has little practical effect on compliance with standards. However, to show differences between two countries does not prove that they are not in the same group. More importantly, AA have not shown that the conceptual and technical approaches of ASA standard setters differ.

## 4. **ASA approaches and practices**

AA say (p. 541) that the above four hypotheses "could be taken" to support the validity of ASA. Consequently, they leave open the possibility that other hypotheses are more relevant. I suggest the hypothesis that ASA does exist and can be seen in shared conceptual approaches and accounting practices. In terms of approaches, the hypothesis can be formulated as follows:

ASA (compared to other forms of accounting) is oriented towards decision-making by investors; it plays down the measurement of taxable income and distributable income; it is less worried about prudence; it is more willing to go beyond superficial legal form.

Of course, it will be possible to find certain features of U.S. accounting (for example) which do not fit the above, or certain features of conventional<sup>5</sup> German accounting (for example) which do. However, taken as a package, it is suggested that the above is a fair description of U.S. and U.K. accounting compared to conventional German accounting. It is

<sup>5</sup> That is, accounting as set out in the HGB, rather than as now practiced by some listed companies in their consolidated statements whereby §292 enables use of international rules instead.

Table 1  
Specific accounting practices

Anglo-Saxon	Some Continental European <sup>a</sup>
Percentage of completion method	Completed contract method
Depreciation over useful lives	Depreciation by tax rules
No legal reserves	Legal reserves
Finance leases capitalized	Lease capitalization rare
Cash flow statements	Cash flow statements rare
No secret reserves	Secret reserves
No tax-induced provisions	Tax-induced provisions
Preliminary expenses expensed	Preliminary expenses capitalizable
Taking gains on unsettled foreign currency monetary items	Deferring gains on unsettled foreign currency monetary items

<sup>a</sup> This heading is used to cover conventional accounting in Belgium, France, Germany, and Italy, which concentrates on individual companies.

clear that AA fundamentally agree with the above characterization of ASA because they too identify its “investor-oriented approach” (p. 553).

Incidentally, France, Germany, and Japan have recently established private sector standard setters who may share some aspects of the above approach. This would not undermine the existence of an ASA approach, it would show that it was being exported.

In terms of detailed accounting practices, I suggest that, here also, ASA can be identified. A second hypothesis can be set out as in Table 1. Again, not all companies in all ASA countries have always to exhibit all the features on the left of the table for ASA to exist as a recognizable body of practices. Table 1 concerns accounting policies related to the financial statements of individual legal entities. The reason for choosing this scope is that the laws of certain countries (e.g., Germany) allow the use of U.S. or IASC rules for consolidated statements under certain conditions; and the laws of others (e.g., France) allow certain ASA features as options in consolidated statements. Consequently, it is complicated to include consolidated statements and therefore to include consolidation issues. The fact that some German or French listed companies can adopt features on the left of Table 1 for their consolidated statements does not threaten the existence of ASA. This debate has also been played out elsewhere (e.g., Cairns, 1997; Nobes, 1998b).

## 5. The politics of the IASC

Roberts (1995) suggests that there are no real, objective, or natural classifications (p. 661) so that a “good” classification is one that is useful for its purpose. Here, one can agree with AA that it is important whether ASA has “explanatory power for today’s developments and . . . predictive power for tomorrow’s” (p. 543). AA’s claim that ASA lacks such power will be refuted below by assessing their arguments about the IASC.

AA examine the membership of the IASC in 1999 and show that ASA countries did not make up the then necessary 75% majority to pass a standard. However, they note that the

ASA's investor-oriented approach has dominated international standard setting. I agree with them on these points. Of course, there were frequent disagreements between and within ASA delegations on the IASC Board, and they did not vote as a group. However, this does not prove AA's major theses, as now explained.

One of AA's purposes (p. 540) is to suggest that the ASA countries had no hegemony over the IASC, and that in the future (after 1999) "internecine warfare is inevitable" (p. 554). In assessing these claims, it is useful to refer again to the "G4 + 1." The fact that it was needed by the ASA standard setters supports AA's conclusion about lack of voting hegemony.

The G4 + 1 sets the agenda for international harmonization by discussing and publishing papers on such topics as provisions, lease accounting, and comprehensive income (Johnson & Lennard, 1998; Lennard & Thompson, 1995; McGregor, 1996). In this way, the ASA standard setters have dominated the IASC's agenda. Also, for all the standards from IAS 33 to IAS 41, only ASA countries had (or were developing) detailed accounting rules. The IASC always began projects with studies of existing rules, so there was little competition from non-ASA countries. In these ways, there was ASA hegemony of ideas, if not, of voting power.

It should be noted that AA would have more difficulty countering the idea of ASA voting hegemony with the new Board of the IASC (i.e., the IASB; see Table 2, which suggests 10 ASA votes out of 14), especially as only a simple majority is now needed to pass a standard. The G4 + 1 was wound up in February 2001 (*IASC Insight*, 2001), and a glance at Table 2 shows why it is no longer needed, given the importance on the IASB not only of ASA countries but particularly of ASA standard setters.

However, I agree with AA that ASA hegemony is not a useful way of looking at it. The non-ASA board members probably also share the framework's philosophy that the purpose of IAS accounting is to give useful information to investors.

Table 2  
IASB members from April 2001

Country	Number	Comment
United States	5 (or 3) <sup>a</sup>	2 former FASB + 1 former FASB trustee (and former IASC chairman) + 2 part-time
United Kingdom	2 (or 4) <sup>a</sup>	Both former ASB
Australia	1	Former AARF executive director
Canada	1	Former AcSB chair
South Africa	1	—
France	1	Former IASC Board
Germany	1	Former Daimler-Chrysler, which uses U.S. GAAP
Japan	1	Former IASC Board
Switzerland	1	Former IASC Board
Total	14	

AcSB = Accounting Standards Board of Canada.

ASB = Accounting Standards Board of the United Kingdom.

AARF = Australian Accounting Research Foundation, which provided the secretariat for the Australian standard setter, the AASB.

FASB = Financial Accounting Standards Board of the United States.

<sup>a</sup> Two board members have United States work backgrounds but United Kingdom nationality.



The previous two paragraphs show that the existence of ASA is helpful in explaining the IASC developments covered. It is also useful for predictions. For example, will there be “internecine warfare” among ASA standard setters?

One of the objectives of the IASB arrangements is that the national standard setters and the IASB should all move together on projects. The G4 + 1 began this process. The IASB seems set to accelerate it. Seven of the board members have liaison responsibilities with eight national Boards. These seven are the countries of Table 2, except for South Africa and Switzerland. The New Zealand standard setter is added to the Australian liaison to complete the coverage of the former G4 + 1.

Just as there are disagreements within a country, so there are among ASA standard setters. However, there seems to be a broad measure of agreement over a wide spectrum of dramatic proposals, such as:

- all noncancellable leases are capital leases,
- the income statement needs to be replaced by a comprehensive statement,
- share options are an expense when granted,
- government grants are income when all their conditions are met,
- financial assets and liabilities should be fair valued with gains/losses treated as income,
- hedge accounting should not be allowed as an exception from the above,
- actuarial gains and losses should be recognized immediately,
- proportional consolidation should not be allowed.

These conclusions, which would lead to major changes in US/UK/IASB requirements (and even larger changes elsewhere) are now part of a consensus of ASA standard setters. Contrary to AA’s conclusion, this enables predictions of change, based on agreement among ASA standard setters which is itself based on the framework. On most issues, I see no sign of the fulfillment of AA’s prediction (p. 554) of a possible IASB/EU/UK combination against the United States. Time will tell.

## **6. Conclusion**

AA define ASA in terms of similar conceptual and technical approaches and an international alliance for standard setting. For the purposes of this comment, I accept this definition and the countries that they identify as Anglo-Saxon.

AA claim that the existence of ASA is a myth. They then choose four hypotheses connected to ASA and try to show that they do not support its existence. However, two of these (on law and on regulation), while treated plausibly by AA, are not central to their definition of ASA so can offer little support to their claims of nonexistence of ASA.

The other two are more complex. On TFV/FP, AA do not prove that there is much difference between the United Kingdom and the United States in terms of the practical effect of the override on compliance with standards or on the use of TFV/FP by standard setters or by preparers and auditors. On conceptual frameworks, they do not show that the ASA

standard setters fail to *use* the frameworks (as opposed to always complying with them), and they do not consider the relevance of the existence of the G4 + 1.

Further, to show that there are some differences between two members of a proposed group does not tell us that the group does not exist. It is useful to look at more members and it is necessary to look at nonmembers for all the features examined. Luckily, it is easier to prove existence than nonexistence. This comment has suggested two hypotheses that are more central to AA's definition of ASA than their own four hypotheses are. That is, in terms of both shared conceptual approaches and accounting practices, it is proposed here that ASA does exist and can easily be identified by comparison with other countries. On the topic of international alliance, it is also suggested that an ASA hegemony of ideas can be identified, particularly during the 1990s, and that it is set to intensify.

The key point is whether the identification of an ASA family is useful. Using AA's own discussion of the IASC, I have suggested that there are several features for which ASA is helpful for explanation and prediction.

## 7. Codicil

Given the increasing use of U.S. and international standards for certain purposes in such countries as Germany, it might be helpful to move from such labels as ASA and continental accounting towards such descriptors as investor/decision accounting compared to creditor/tax accounting. AA are pointing us in this direction. However, this would not imply that ASA did not or does not exist. Rather the reverse; it would acknowledge that, for example, most German listed companies have chosen to use ASA for their consolidated statements.

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## **Book Review Section**

The book review section is interested in works published in any language, as long as they are comparative or international in character. The author or publisher of such works should furnish the book review editor with two (2) copies of the work, including information about its price and the address where readers may write for copies. Reviews will be assigned by the book review editor. No unsolicited reviews will be accepted. Suggestions of works that might be reviewed are welcomed.

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## Book reviews

### **Corporate Financial Reporting: A Global Perspective**

by Hervé Stolowy and Michel J. Lebas, Thomson, London, UK, 2002, xxvi + 636 pp.  
ISBN: 1-861-52753-5. £31.99

Until very recently, local-language financial accounting (FA) textbooks and supporting materials were typically used in teaching university-level FA courses in European Union (EU) member states. The specific character of local FA regulation (both legal rules and FA standards), even after the introduction of the EU FA directives in the 1970s and 1980s, made this almost inevitable. Almost, since it could, of course, be argued that FA concepts were the same everywhere and that it did not really matter which specific set of FA standards were used as a background for the FA courses as long as it was a sufficiently advanced set. However, attempts to use nonlocal textbooks, e.g., U.S. textbooks, were always likely to meet with student opposition and with opposition from the local auditing profession. They would both complain about a lack of immediate relevance.

As Stolowy and Lebas, authors of the book under review here, correctly point out, this state of affairs is now rapidly changing in the EU. Three developments have caused this change: (a) the European Commission's initiative to make the use of the International Accounting Standards Board's (IASB) FA standards mandatory for firms listed on EU stock exchanges starting in 2005; (b) the increasing concentration and integration of the first- and second-tier audit firms in the EU; and (c) the increased mobility of students within the EU. All three developments are ongoing. Notably, student mobility within the EU is likely to increase even further given the rapid implementation of the "Bologna" agreement on university education within the EU. This will create everywhere in the EU the distinction between undergraduate (bachelor's) and graduate (master's) university education. The expectation is that graduate studies are likely to be pursued in a place (country) different from that where the student was as an undergraduate.

All of these will have a liberating effect on the teaching of FA and also of auditing in the EU. An obvious choice will be to teach FA using a FA textbook that uses the IASB FA standards as background and that is written in English, the EU's modern lingua franca.

Stolowy and Lebas have written just such an introductory FA textbook (SL). SL is one of several IASB standards-based introductory and intermediate textbooks that have very recently come on the market. What makes SL unique is that it is the first such book written by non-English speaking, in this case French, authors. This gives SL an interesting and special flavor, which I will return to below. It should be noted that competition is likely to emerge soon on this front as well.



SL is posited as a global IASB-based textbook. It must be said at the outset that SL has a very distinctive EU flavor. Quite a few non-EU countries have “adopted” IASB standards as well. However, SL uses mostly EU-based examples, and its references to the FA research literature are mostly to research produced in the EU.

SL is, apart from the IASB background, a straightforward introductory FA textbook. It is written, the authors state, from a user perspective. However, the technical discussions are sufficiently deep to make the book also interesting for an introductory FA course catering to the preparer’s perspective.

The book consists of three parts. The first part provides a conceptual introduction to financial accounting. One of the chapters provides a brief introduction to the mechanics of double-entry bookkeeping.

The second part of the book introduces all main accounting issues, starting with income statement items and then discussing in successive chapters balance sheet items, assets first and then obligations; equity, liabilities, and provisions. Income taxes and the related accounting treatment involving deferred taxation are placed in the first chapter, on revenue recognition, of the second part of the book. Note that this particular chapter is actually about both revenue and expense recognition, i.e., about accrual accounting income. A separate chapter on accounting for income taxes, or its inclusion in the later chapter on liabilities and provisions would, I think, have been more insightful. The final chapter of this part of the book considers consolidations.

The last part of the book is devoted to financial statement analysis. This part consists of an oddly placed chapter devoted to the cash flow statement and a chapter discussing financial ratios. It would have been more insightful, I think, to have included the cash flow statement in the conceptual first part of the book. That would have enabled the authors to more directly compare accrual and cash-based financial accounting and their relative merits. Of course, those using the book could move a discussion the cash flow statement chapter to earlier in the course.

The “special” flavor of SL that I alluded to can be illustrated by referring to the discussion of deferred taxation. SL also devotes space to carefully explain the background of accounting for income taxes on a flow-through basis. This is done on the ground that this is a system that is preferred at the legal entity level in several EU member states, notwithstanding the IASB pronouncements on this issue. A second example is the discussion of the use of standardized charts of accounts. In several EU member states these exist, and SL in this case as also devotes space to the reasons behind their existence. This kind of material is only rarely seen in FA introductory textbooks written by English language authors. I think the approach taken in SL does indeed provide balance in the discussion of these FA issues and will enhance student understanding of the IASB rules (they will have seen an “alternative”).

A few remarks: The discussion of the details of legal company forms comes rather late in SL (in chapter 11 on shareholders’ equity). In that regard, SL could have devoted more space to the institutional peculiarities of (continental) EU companies, which are often private firms and relying much more on bank loans than on bond markets. These institutional characteristics inevitably “color” FA in the EU. A discussion of these characteristics would also have allowed the authors to provide more material on country-level institutions surrounding FA,

e.g., enforcement of FA standards, in the EU than is now in the book. The book has a useful subject index. It comes with a CD-ROM that contains additional material and exercises and a helpful multilingual glossary of FA terms. There is also a dedicated Web site.

SL is an interesting alternative to consider for introductory FA courses in the EU, and in other countries where IASB standards are rapidly gaining in relevance. SL is especially interesting in that it has a continental European flavor, notwithstanding its focus on IASB standards. This will help students' comprehension of FA issues in non-English-speaking countries.

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doi:10.1016/S0020-7063(02)00210-8

### **Financial Accounting, Reporting and Analysis, International Edition**

by Barry Elliott and Jamie Elliott, Pearson Education, Harlow, England, 2002, xx + 800 pp.  
ISBN: 0-273-64692-3

The book provides a comprehensive coverage of contemporary issues in financial accounting. Primarily based on International Accounting Standards (IASs), it offers a truly international perspective on important accounting issues. The book contains 31 chapters divided in seven parts.

Part 1 lays a conceptual foundation for alternative income and asset measurement systems used in accounting and economics. A demonstration of accounting under cash vis-à-vis accrual basis, together with a reconciliation of selected cash-based accounting data with accrual accounting information, is the highlight of the first two chapters. Chapters 3 and 4 deal with the accountant's and economist's view of income, capital and value, concepts of physical and financial capital maintenance, and alternative accounting models. Chapter 5 outlines the implications of price-level changes, pointing out the initiatives taken by the European Union (EU) and the IASs Board (IASB) in their search for a comprehensive model.

Part 2 of the book "Regulatory Framework" comprises five chapters. Chapter 6 effectively supplements parts of an international accounting textbook by covering the conceptual issues of international accounting and providing a summary of financial reporting regulatory frameworks in France, Germany, Sweden, Netherlands, and Malaysia. Chapter 7 presents the UK conceptual framework, discussing the Accounting Standards Board's Statement of Principles published in 1999. Although the coverage of the IASB and Financial Accounting



Standards Board's conceptual frameworks appears to be minimal, the discussion of the UK framework proves to be a valuable resource for international and European accounting students and academics in general and for the UK accounting audience in particular. Chapters 8–10 deal with IASB's financial reporting requirements offering a step-by-step guideline in preparing a complete set of financial statements in compliance with applicable IASs.

Part 3 comprises five chapters. Chapters 11 and 12 take a UK perspective when accounting for share capital and profit distributions. Chapter 11 deals with financing instruments and their accounting treatments. It highlights the importance of capital maintenance while distributing profits in a way to protect creditors. Chapter 12 deals with the restrictions imposed by the UK Companies Act 1985 on the reduction of share capital and the accounting treatment of share premium and capital redemption reserve. Chapter 13 deals with off-balance-sheet financing and financial instruments. It identifies managers' incentives in using off-balance-sheet financing using innovative financial instruments. Emphasizing the magnitude of the problem, it identifies the whole range of off-balance-sheet financing vehicles, including leases, consignment stocks, sale and repurchase agreements, and debt factoring. Chapter 14 covers another topical issue—accounting for employee benefits. Having shown the financial reporting implications of employee benefit plans, it provides detailed guidelines on the application of IAS 19 and IAS 26. Chapter 15 deals with deferred tax. It differentiates permanent differences from timing differences and shows the two methods of calculating deferred tax. The chapter includes examples on the application of IAS 12 and a reconciliation of a home country GAAP with U.S. GAAP on deferred tax.

The five chapters in part 4 deal with assets. Chapter 16 highlights accounting for Property Plant and Equipment (PPE) under IAS 16 and IAS 23, while chapter 17 covers accounting for leases under IAS 17, showing comparative practices in the UK, Australia, New Zealand, and Malaysia and outlining the theoretical underpinnings of lease accounting. Chapter 18 on intangible assets raises issues underlying immediate write-off and capitalization of R&D and goodwill, presents the arguments for and against both methods, and gives a brief account of the historical development of accounting for intangibles. Chapter 19 provides an innovative approach to accounting for inventory by including items like self-generating and regenerating assets, natural and heritage assets, and nature reserves and parks. The valuation issues relating to these nonconventional items of inventory, along with the background of inventory standard in the UK, Australia, and New Zealand, prove worthy features of the chapter. Issues concerning the recognition of revenues and expenses of construction contracts are covered in chapter 20.

Consolidated accounts, comprising six chapters, are dealt with in part 5. Providing useful definitions of group and control as per IAS 27 and IAS 22, respectively, chapter 21 shows the treatments of positive and negative goodwill and provides guidelines to calculate fair values and minority interests. The next two chapters deal with the preparation of consolidated balance sheets and consolidated income statements. The accounting issues concerning associated companies are dealt with in chapter 24. The chapter demonstrates the use of the equity method of accounting for associates but does not show the effects of the use of cost method. Cost method is mentioned only once in the chapter. Coverage of accounting for joint ventures is also brief. The next chapter covers the pooling-of-interests



method with a comprehensive illustration. It also compares the results of consolidation under the two methods and outlines the pros and cons of the pooling-of-interests method. Chapter 26 focuses on accounting for foreign currency transactions and translations under IAS 21 with comprehensive examples.

Part 6, comprising three chapters, deals with financial statement analysis. Chapter 27 provides a review of ratio analysis, identifying six key ratios before proceeding to "subsidiary" ratios. Financial analysis is extended to chapter 28, including horizontal and vertical analysis, multivariate analysis, *A* scores, balanced scorecard, shareholder value analysis, and economic value added (EVA). The introduction of Taffler's *Z* score and *A* scores makes the chapter interesting and up to date. Chapter 29 deals with earnings per share—both diluted and undiluted.

The final part of the book, part 7, covers corporate governance and business ethics. Chapter 30 on corporate governance summarizes the current status of corporate governance requirements in selected countries. It also looks at the role of remuneration committees, directors' remuneration, the effect of stock options on directors' remuneration, and auditor independence. The final chapter, chapter 31, underlines the importance of ethical codes for businesses as well as for professional accountants. It sees the accountant in the role of a guardian of business ethics.

## 1. Strengths

A number of features of the book constitute its main strengths. First, its coverage of accounting topics with international dimensions is comprehensive. The authors went beyond the traditional financial accounting topics to cover cash versus accrual accounting (chapters 1 and 2), alternative accounting models (chapters 3–5), financial instruments (chapter 13), multivariate analysis (chapter 28), and corporate governance (chapter 30). Although the topics themselves are not new, most accounting textbooks seem to ignore them or take it for granted that the readers already know them. Second, the depth of coverage of the conventional topics is also noteworthy. On off-balance-sheet financing, conceptual frameworks, accounting for share capital and reconstruction of capital structure, leases, intangibles, and group accounts, the book highlights both theoretical and practical issues underpinning the concerned accounting treatments. Third, the presentation style used in the book is user friendly. Almost all of the chapters have adequate worked-out illustrations. Students using the book would find them very helpful in clarifying the concepts as well as in solving end-of-chapter problems. The procedure shown for preparing individual financial statements and consolidated financial statements will prove useful to students and academics looking for reasonably comprehensive examples. The book did not take the short-cut route of providing short and simple illustrations without covering all major aspects of the chapters. Finally, the book has taken an international approach and successfully avoided the authors' home country bias in all cases where IASs was available. Its use of IASs as the source of guidelines is timely in the context of the proposed mandatory use of IASs by all EU-listed companies from the year 2005. It also widens the prospective audience of the book throughout Europe.

## 2. Weaknesses

One of the strengths of the book is also the source of one of its potential weaknesses—coverage. The book seems to have attempted to cover financial accounting, international accounting, and parts of management accounting. In its pursuit to cover a wide range of topics, it had to sacrifice some depth in chapter 26 on accounting for the effects of changes in foreign exchange rates, abbreviate discussions on segment reporting in chapter 27, and compress discussions on a contemporary topic like employee stock options in chapter 30. One wonders whether the chapters on ratio analysis and business ethics are critical to attaining the aims of the book. Perhaps a reasonable coverage of analyzing financial statements prepared under foreign GAAP could provide more justification for a chapter on financial analysis.

## 3. Audience

The book would make an excellent textbook for coverage of financial accounting in general and of IAS-based financial accounting in particular. If not the first of its kind, this is probably one of the first financial accounting textbooks written exclusively based on IASs. Students internationally would very much appreciate the textbook if it were recommended for a second to third year undergraduate course on financial accounting.

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doi:10.1016/S0020-7063(02)00211-X

## **A Comparative Analysis of Regulatory Strategies in Accounting and Their Impact on Corporate Compliance**

by Gabi Ebberts, Peter Lang GmbH, Frankfurt am Main, 2001, xix+263 pp.  
ISBN: 3-631-38245-6. € 45.50

This book is a republication of Gabi Ebberts' doctoral thesis, which was successfully defended in 1998 at the University of Wales, Bangor. Dr. Ebberts did her undergraduate work at the University of Munster, Germany, and did postgraduate qualifications at Bangor and at the Paris-Dauphine University in France, before starting her thesis under the supervision of Stuart McLeay.

The thesis is a comparative study centered on nine European countries that are members of the EU. The main focus of the work is compliance with financial reporting rules by listed companies and "to investigate whether the avoidance of regulation is associated with the different regulatory strategies for accounting found in Western Europe" (p. 1). The research



involves examining company reports for their accounting policy in three areas of accounting, assessing compliance with the regulations in force and comparing the degree of compliance with the source of the rules. The outcome of statistical analysis is that compliance appears to be linked to the nature of the regulatory instruments and that regulation through standard setting is most likely to achieve a high level of compliance. The analysis also suggests that prescriptive rules ("formal" in terms of the study) are more likely to achieve compliance than principles-based rules ("antiformal").

The thesis starts with a rapid review of some of the literature on accounting regulation, taking in normative approaches, positive accounting theory, social value approaches, and critical accounting. It also looks at the literature on the forms of regulation and on compliance.

The next building block is an analysis of accounting regulation in the nine sample countries (Belgium, Denmark, France, Germany, Ireland, Italy, The Netherlands, Spain, and the UK). Regulation is categorized as legislation, standards, or nonbinding recommendations, and the framework of the regulation during the years under review (1987, 1993, and 1995) is outlined for each of the nine countries and put into the three categories.

Dr. Ebbers then looks at three areas of accounting policy: valuation of fixed assets, foreign currency translation, and the criteria for determining the scope of the consolidation. She discusses her binomial linear logistic model, which is the basis for her statistical analysis, and the constraints for selecting her sample companies. She specified that the companies must have reports available for at least two of the three selected years, should have foreign transactions, and should be listed on at least two European stock exchanges. This yielded a sample of 118 companies for 1987, 154 for 1993, and 143 for 1995. Denmark is the least well-represented country, with only three observations for 1987 and five for the other years. The UK is best represented, with 29 for 1987, 44 for 1993, and 41 for 1995.

The next section provides a discussion of the disclosures of the sample companies in the three target accounting policy areas, with citations from some of the published reports. It then presents the results of the input of the compliance data into the model. Dr. Ebbers says, "The empirical analysis suggests that compliance by European companies with accounting regulations is systematically associated with the type of institution issuing the relevant accounting regulation" (p. 225). She also observes that "the degree of formalism in accounting regulation is only a systematic explanatory factor in certain policy areas" (p. 226) but "accounting regulation drafted in a formalistic, highly detailed manner was found to generate a higher rate of compliance than did accounting rules drafted in a general, open-textured manner" (p. 226).

The publication of doctoral theses as such, while still regularly encountered in continental Europe, has largely died out in the Anglo-Saxon world, where institutional pressure to be published in quality journals usually leads to the recycling of smaller segments of the overall work in article form. Speaking as a past editor of books, I can see both advantages and disadvantages. The book form of publication makes the work more widely available and therefore allows the possibility of other researchers drawing inspiration from it. However, the fact that the internal structure has been determined by the constraints of a thesis, requiring demonstration of all aspects of the argument, may mean that there are elements of the work that are not very useful to the potential book reader. In this case, one could imagine that the



long analysis of the regulatory framework in the nine countries, as well as the equally lengthy discussion of accounting for fixed assets, foreign currency translation, and the definition of a subsidiary, could have been dispensed with or been treated in more summary fashion in a book version.

This is a very interesting piece of research in a difficult and underresearched area. The conclusion that standard setting is more effective than legislation will bring encouragement to Anglo-Saxon regulators, although the evolution of regulation in Europe seems to be going in that direction in any event. More disturbing is the implication that formal rules generate better compliance. It is a groundbreaking study in its way, and it is to be hoped that some of the questions it raises about the mode of regulation will be subjected to further research by others.

It is very difficult to design research in an area like this, which provides reliable results, and, in the case of this study, a particular weakness is indeed the very determination of whether a company has been compliant or not. The thesis does not go into the literature that addresses the art of assessing compliance based on published accounts. There is no discussion either of the issue of content analysis. Research in content usually involves testing the perceptions of the scorer against those of other scorers. In this case, we have only Dr. Ebberts' perceptions to rely on, and her scoring of the disclosure as (1) compliant, (2) partially compliant, or (3) noncompliant. She says that a company is scored as compliant when the "reported policy corresponds unambiguously with the national regulatory environment" (p. 188). Noncompliance is "when there is a clear indication by the company in its annual report that the rule in question is contravened" (p. 188). However, ambiguous disclosures will lead to classification in the partially compliant category. An implication of this is that classification may be a function of how clearly the note was drawn up—or even how accurately it was translated if, by any chance, Dr. Ebberts was looking other than at the home version of the accounts.

Another problem with notes is that there is no obligation to disclose when an accounting policy does not apply. For example, where the national GAAP requires that a company should be treated as a subsidiary if the parent has 50% of the voting shares, or otherwise has management control, if a company had only majority-owned subsidiaries, what would its accounting policy note say? Perhaps the note would explain that companies included within the scope of consolidation as subsidiaries were all ones where the parent had majority voting control. The company has no need to say there are no linked companies where it has management control but not voting control, but the absence of any mention of this would presumably lead to the company being classified as partially compliant when in fact it is fully compliant. It might have been useful to include an analysis of the audit reports of these companies to see whether the auditors considered the accounts fully compliant.

This classification problem is inherent in all compliance studies, which are based on reported information. One conclusion of this research could have been that standard setters might give thought to the idea of requiring disclosure of policies that do not apply. This would enhance the ability of external readers to assess the quality of the published information.

The objective of the research was not to offer any explanation of the patterns that the empirical analysis identifies. However, one is tempted to wonder whether there is any

possibility that standard setters tend to be more prescriptive about disclosures, and therefore where the index of compliance is the published disclosures, it would be normal for the standards to come out better.

A second area that calls for further work is the other possible factors influencing the disclosure patterns. The research design specifies that the sample companies must be listed on at least one other European exchange (actually, I could find no explanation in the text for that specification). There is no discussion as to whether these companies were listed outside Europe and in particular in the United States. It is generally accepted by researchers in international accounting that cross-listing will lead to special influences on accounting policy, and it would have been useful to run a test on the sample to see if there was any evidence of this and if this influences the results.

A further question mark concerns the existence of compliance control mechanisms in the home country. Not all the sample countries have any mechanisms for stock exchange or other bodies to check for compliance, and UK research (e.g., Fearnley, Hines, McBride, & Brandt, 2002) into the creation of the Financial Reporting Review Panel suggests that the existence and behavior of a compliance body may have an impact upon preparers and auditors. Dr. Ebbers does not include this factor.

Also missing is any consideration of cultural variables and their possible impact upon compliance. It is slightly surprising that there is no discussion of Gray (1988) or even of anecdotal evidence from standard setters such as David Cairns that national attitudes to the role of rules and compliance is impacted by cultural variables.

It is easy, with the benefit of hindsight, to suggest that perhaps it would have been worth considering narrowing the research to a small number of countries (those with the larger number of sample companies) and expanding the range of the analysis. However, this is a very substantial and impressive piece of work that deserves to have a place in the literature concerned with accounting regulation. It is understandable but regrettable when doctoral students avoid taking risks in selecting their research area; Dr. Ebbers is to be congratulated on taking on a difficult subject and breaking new ground.

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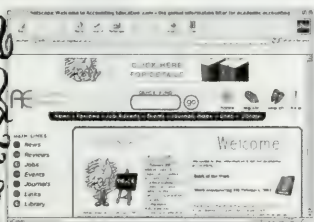
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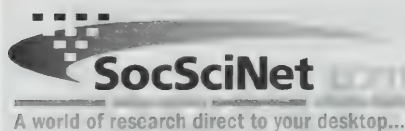
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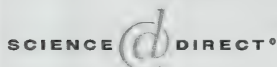
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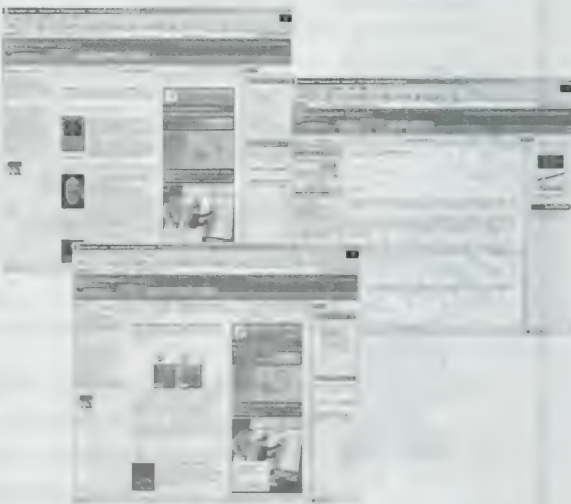
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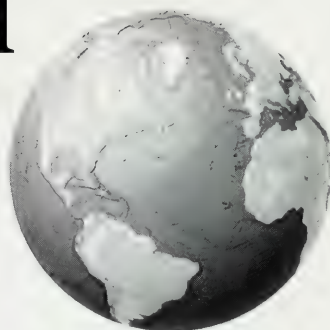
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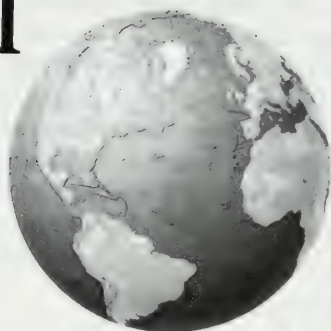
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# How it all began: the rise of listing requirements on the London, Berlin, Paris, and New York stock exchanges<sup>☆</sup>

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## Abstract

The issue of accounting standards for foreign securities listed on a stock exchange arose gradually over the period 1825–1914 among the leading exchanges in the first global financial market—London, New York, Paris, and Berlin. Comparing their listing requirements on the eve of World War I, we find that the London and New York exchanges were most detailed, reflecting their common-law legal environments and their status as self-regulating organizations. The evolution of listing requirements in London and New York therefore influenced the development of accounting standards in those countries. By contrast, Paris and Berlin relied on validation of a security by political authorities. One result of these differences in legal and political environments was that American railroads issued the only securities to be listed on each of the four exchanges.

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**Keywords:** Listing requirements; London; Berlin; Paris; New York

## 1. Introduction

The global financial market created in the last quarter of the 20th century, with all its challenges and opportunities for mobilizing capital across national borders, still pales in size

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and significance relative to the international capital market that arose in the last quarter of the 19th century.<sup>1</sup> During the classical gold standard period, 1880–1913, industrializing nations, led by Great Britain and followed in turn by France, Germany, and the United States, exported capital on a scale that still has not been approached in terms of the export's importance relative to either national capital stock or national product. These immense flows of capital were mainly funneled through organized stock exchanges, and because of their interposition, portfolio investments were made readily available to millions of investors around the world, regardless of whether or not those investors were citizens of the country where the security was issued or even of the country where it was traded. In addition, recent research has yielded increasing estimates of the amount of foreign direct investment that also took place in this period—investments that accompany the massive waves of migration that were a unique adjunct to the gold standard epoch.<sup>2</sup> An ardent evangelist of the benefits of overseas investing for the British public, Henry Lowenfeld, writing in 1910, counted 89 principal stock exchanges around the world, with 56% in Europe, mainly western Europe, and the rest largely in areas of European settlement.<sup>3</sup> Together, those markets allowed some 20 million investors to trade holdings in over \$160 billion worth (nominal value) of securities. The French authority on stock exchanges, Alfred Neymark, estimated that British investors held 24%, Americans 21%, French 18%, and Germans 16% of the world stock of securities.<sup>4</sup> In the current expansion of emerging markets and the growing willingness of investors to look abroad for favorable opportunities, many issues concerning appropriate rules and regulations arise—those issues are similar to those that arose as well during the 19th century. Looking at the ways that the leading stock exchanges of the first global financial market handled such issues should prove instructive for today's practitioners and policymakers. From an academic researcher's point of view, it is especially useful to discover that the four leading stock exchanges in that earlier epoch derived their rules and regulations under quite different legal and political environments. Accounting practices and standards also evolved quite differently across the four countries, and those differences depended largely on the original motivation for the establishment of the individual set of rules. In England, the demand for accounting standards came from bondholders, while in France, tax reporting was the *raison d'être* for the government's successive decrees. Germany stressed managerial and cost accounting, but only in the United States were rules designed to yield data that could be

<sup>1</sup> Obstfeld, M., & Taylor, A. (1998). The Great Depression as a watershed: International capital mobility over the long run. In M. Bordo, C. Goldin, & E. White (Eds.), *The defining moment: The Great Depression and the American economy in the twentieth century*. Chicago. Cf. O'Rourke, K., & Williamson, J. G. (2000). *Globalization and history: The evolution of a nineteenth-century Atlantic economy*. Cambridge, MA: MIT Press.

<sup>2</sup> Wilkins, M., & Schröter, H. (1998). *The free-standing company in the world economy, 1830–1996*. New York: Oxford University Press, 1998.

<sup>3</sup> Lowenfeld, H. (1910). *All about investment* (2nd ed.). London: The Financial Review of Reviews. Lowenfeld also wrote *The investment of trust funds in the safest and most productive manner*, (London, Effingham Wilson, 1907), in which he demonstrated the risk-return advantages of an internationally diversified portfolio for British investors in the first global capital market.

<sup>4</sup> Neymark, M. A. (1911). *La statistique internationale de valeurs mobilières*. La Haye.



used to analyze the various forces that affected net income—an analysis that was critical for evaluating common stocks.<sup>5</sup>

## 2. Accounting standards

By the decade before World War I, all four exchanges had listed the shares of major industrial corporations, and each had laid out detailed requirements for new companies to gain listing. Berlin and New York concentrated on domestic corporations, while Paris and London continued to compete as the premier marketplaces for the global financial market that had arisen over the last four decades of the “long” 19th century. The Appendix A present summaries of the listing rules existing for each exchange. The issue of accounting standards that were to be followed by any newly listed company was not raised by any of the exchanges. Each, however, insisted that its committee charged with the responsibility for granting listing of the shares in a corporation have full access to the legal documents required of the corporation in its country, or state, of origin. Moreover, each exchange also required that advertisements reporting the information provided to the stock exchange be placed in major newspapers, both in the city of the exchange and in the location of the home office of the corporation. Presumably, this requirement was intended to elicit comments by knowledgeable brokers, bankers, or competitors in the event that the information was incomplete or misleading.

Specific reference to auditing requirements is notably missing from the constitution of the New York Stock Exchange (NYSE). The economist of the exchange rationalized this omission by pointing to the powerful effects of publicity and the market power of speculators, but the lack of required audits by all but 2 states of the then 48 was lamented by a leading contemporary accountant, who pointed to French law requiring outside audits as providing superior protection to outside investors.<sup>6</sup> German law provided that the Aufsichtsrat could insist on an outside audit at any time; but even the accountant who lauded French law felt that these audits were perfunctory and self-serving.<sup>7</sup>

The one piece of accounting data demanded by both New York and London was a statement of how much capital stock of the corporation would, in fact, be available for outside investors. If most of the capital stock of a firm was not paid up, free from outstanding liens, and available to potential investors beyond the founding subscribers, there was little point for the members of these exchanges in doing business with it. Further, the NYSE wanted, and received, information on the size distribution of holdings of stock, distinguishing the number of holders of share lots of 1–100, 101–200, 201–300, 401–500, 501–1000, and 1000 and

<sup>5</sup> Baskin & Miranti (1997). *A history of corporate finance*. Cambridge: Cambridge University Press, pp. 226–227.

<sup>6</sup> Meeker, J. E. (1922). *The work of the stock exchange*. New York: Ronald Press, p. 446–51 (economist) and Greenwood, W. J. (1921). *American and foreign stock exchange practice stock and bond trading and the business corporation laws of all nations*. New York: Financial Books, p. 106 (accountant).

<sup>7</sup> Greenwood, p. 893.



up, as well as identifying the largest 10 shareholders by name.<sup>8</sup> In this way, the economist of the NYSE could state that, over the years 1909–1920, shares in the common stock of U.S. Steel moved from a distribution marked by two-thirds in the stock in the hands of speculators (members of the NYSE) and one-third held by long-term investors at the beginning of the period to three-fourths held by investors and only one quarter held by “speculators” at the end of the period.<sup>9</sup>

For listings of shares in foreign corporations before 1914, only the rules of the Paris and London exchanges are of interest. Both required that a foreign corporation be introduced to the exchange by a member of the exchange in good standing and that the company show proof that the corporation’s shares had been listed on their home country’s exchange (although the Paris rules made allowance in case the home country had no stock exchange). Paris, as would be expected from an organization operating under civil law, also required the consul of the home country of the foreign corporation to swear that it was a legally constituted corporation in the home country. Beyond these promises, both exchanges wanted assurances that enough of the foreign corporation’s shares would be available for trade on their floors to make it worthwhile for their members to take on the business.

The most striking evidence from this period of the importance of uniform and transparent accounting standards for international cross-listing of equities lies in the nearly universal acceptance of American railroad bonds and shares for listing in foreign exchanges. It has long been held that the fraudulent practices of early railroad promoters (described in Charles F. Adams’ classic, *Chapters of Erie*, and since recounted in every popular history of the NYSE), as well as the huge amounts of capital sunk into their construction and continued operation provided the chief impetus for the rise of the professional accounting and auditing profession in the United States. It was not, however, until after 1895, when 25% of the U.S. railroad network was in the hands of receivers appointed by bankruptcy courts, that accounting standards were really enforced upon railroads. Even then, when in 1908, the ICC imposed uniform depreciation accounting standards upon American railroads (and after the stock market panic of 1907 had substantially decreased the market values of their securities), the railroads responded with an impressive array of accounting devices designed to restore the announced value of their capital stock after required depreciation allowances had been taken. By lucky chance, long-abandoned freight cars were found, and in some cases, forgotten or previously overlooked branch lines made their appearance in the annual reports.<sup>10</sup> Weakly enforced and subject to opportunistic experimentation by railroad accountants, the American accounting standards nevertheless helped make U.S. railroad securities one of the premier international investments, even before the creation of the Securities Exchange Commission in 1934. The experience of American railroad securities offers evidence, perhaps, of the relative

<sup>8</sup> Meeker, p. 448.

<sup>9</sup> Meeker, p. 464.

<sup>10</sup> It was this surge of new capital “found” to offset depreciation allowances in 1910 that led one economic historian to mistakenly assert that railroad investment peaked in 1910, rather than 1907 as actually occurred. (Neal, L. Investment behavior by American railroads: 1897–1914. *Review of Economics and Statistics* 51 (1969), 126–135.

weakness of the rules in other countries, but perhaps also of the incentive these rules gave to American railroad companies to create new securities for issuance abroad. To understand the historical process by which these differences in listing requirements among the four major exchanges of the world in 1914 arose, it is useful to go back to the origins of the stock exchanges themselves.

### 3. How the stock exchanges arose and developed<sup>11</sup>

Almost as if they intended to create a controlled experiment in the effects of differing property rights, London and New York went about creating their new markets in quite different ways. In London in 1801, a private corporation with a limited number of shareholders (260) constructed a new building to house trading activity—activity that was mainly focused on issues of government debt. However, by British common law, they were unable to exclude nonshareholders from the marketplace that they had built. So the limited number of proprietors—the owners of the exchange—deliberately set out to establish rules that would encourage all potential traders to effect their trades, as dues paying members, within the confines of the new exchange. In this way, the proprietors could maximize their revenues from the exchange. The 260 original proprietors largely succeeded in achieving this goal; they initially attracted 550 subscribers as members in the new facility.<sup>12</sup> In New York, in 1792, a much smaller number of brokers—brokers operating a day's journey from the national capital—agreed to trade the bond issues of the newly created Federal debt only with each other. They also agreed to maintain minimum commissions that were to be charged to their clients (one-fourth of 1% of the specie value of the transaction). The 1792 agreement produced the forerunner of the NYSE.

On the continent, by contrast, absolute rulers tried to set up their secondary markets for their government debt by fiat. However, the rules they chose differed markedly from country to country. In Paris, in 1808, Napoleon began by restoring to the Paris Bourse its government-enforced monopoly on trading in the reconstituted public debt in an attempt to bring order out of the revolutionary chaos that had both opened access to the stock exchange to the general public and that had led to the government defaulting on two-thirds of the national debt. He limited the number of agents de change to 60 individuals willing to pay a price for the privilege and to post a bond with the government—a bond that was sufficient to cover claims made by disappointed customers. In Berlin, in 1804, the Prussian king created a new corporation that was charged with maintaining an orderly market with publicly posted prices for his debt issues, but with the restriction that anyone desiring to trade could have access to the marketplace, whether they were a member of the exchange or not.

<sup>11</sup> This section draws upon material in Davis L., & Neal, L. (1998, May) "Micro rules and macro outcomes: The impact of the structure of organizational rules on the efficiency of security exchanges, London, New York, and Paris, 1800–1914. *American Economic Review*, 88:2, pp. 40–45.

<sup>12</sup> Morgan E. V., & Thomas W. A. (1961). *The stock exchange, its history and functions*. London: Elek Books, p. 143.



The large number of traders on the London Stock Exchange made it very difficult to reach collusive agreements among the members, especially as their numbers kept increasing—a result of the proprietors' continuing drive for membership (and thus, for profits). Further, from the beginning, the members were divided into two groups: jobbers, who held inventories of the most widely traded securities and traded on their own account as principals, and brokers, who were not supposed to hold inventories of securities but to only act as agents for customers who were not members of the exchange. Their respective sources of earnings, bid–ask spreads versus commissions, made it difficult for the two groups to agree on any change in the rules. By contrast, the smaller number of traders in New York were able and did collude to maintain both minimum commissions for the brokers and a restricted number of high volume securities for the dealers. However, they had to deal constantly with challenges from other exchanges in New York as well as competition from exchanges in Philadelphia and Boston.

In Paris, the very small number of brokers were strictly forbidden to act as principals, and their actions were supposedly under the strict control of the central government. However, their small numbers and long tenure enabled them to maintain effective influence over a succession of governments—an influence that led, in turn, throughout the 19th century, to their personal profit. Between 1815 and 1848, the large numbers of traders acting on the Berlin exchange, the dwindling level of the Prussian government debt, and the restrictions placed by the government on the chartering of new corporations meant that the exchange was less important than the older security markets in Frankfurt and Hamburg. After 1848, however, with the change of the governments' chartering policy and the issuance of new debt by both the Prussian state and the railroads, the business of the Berlin exchange expanded rapidly. Thus, even before the establishment of the Reich in 1871, and thanks in part to the initial placement of public securities and to the development of telegraphic communications links within the Zollverein, Berlin rapidly became the leading German exchange.

The first listing requirements in each exchange were imposed at the time of their formal organization—London in 1801, Berlin in 1804, Paris in 1807, and New York in 1817. The requirements simply enumerated the specific securities and their prices that were to be quoted in the price lists provided by the exchange to the member brokers. Those members, in turn, could distribute the lists to their customers and to the financial press. The range of securities listed and the information provided about each varied widely among the exchanges. In our view, the differences in listings reflected the differences in microstructures of the several exchanges, and those structures, in turn, mirrored the purposes for which each exchange was founded. Later, as each exchange began to list foreign as well as domestic securities, differences emerged that reflected the different legal and political environments within which the exchanges operated.

#### **4. Listing of foreign securities**

Indeed, the entire issue of how, when, and which foreign securities were to be listed on a given exchange depended on factors largely out of the control of the individual exchanges.



The Amsterdam Beurs, the first stock exchange capable of supporting a professional class of stockbrokers, owed the rise of its business to the fact that the various provinces and municipalities of the Netherlands tried to make the annuities they issued as attractive as possible to nonresidents.<sup>13</sup> When, for the purpose of maintaining convoy protection, the seven provinces combined their individual fleets—fleets that were trading with the East Indies—they welcomed shareholding by foreign merchants in their United East India (VOC for Vereenigde Oost-indische Compagnie)—a company that was formed in 1602. However, the shareholders had no voting power, the affairs of the company were directed by a board of 17 gentlemen (Heeren XVII), and the 17 members were appointed by the individual provinces. Each province appointed a specified number of members—a number that reflected the proportion of the capital stock issued by that province. Amsterdam had just under half of what was then the capital stock of the largest corporation in the world. It is, therefore, hardly surprising that throughout the 17th century, trade in VOC shares naturally concentrated in Amsterdam. Likewise, trade in the life and perpetual annuities that were issued from time to time by the Dutch cities and provinces whenever they were forced to bear their share of the costs of nearly constant warfare tended also to concentrate in that city.

When, in 1688, the Prince of the House of Orange became William III, King of England and Wales, Dutch financial practices were imported wholesale into London by the Stadholder of the United Provinces. The Bank of England, chartered in 1694, the New East India, created in 1698, and the South Sea (1710) were all joint-stock companies that held long-term government debt, and companies that, on the basis of their debt holdings, issued their shares to citizens and foreigners alike. Foreigners could not hold office in any of the companies, but if they held enough stock, they could vote for the directors of each company. When, in 1720, the South Sea Bubble converted most of the remaining national debt into shares in the South Sea, the Bank of England, and the United East India, the Dutch may have held a quarter of the national debt of Britain! As the 18th century wore on, Dutch newspapers kept faithful track, not only of Dutch securities, but also of the share prices of the three main English companies as well as the prices of the perpetual annuities that the British government began to issue after 1726.<sup>14</sup>

By the middle of the century, the Dutch began to diversify their portfolios across Europe, investing even in the risky shares of the French Compagnie des Indes and taking on bonds sold on behalf of various kings and princes, including the Tsars and Tsarinas of Russia. At the end of the 18th century, the process culminated with purchases of bonds issued by both American states and the new Federal government, as well as shares in the First Bank of the United States.<sup>15</sup> In each case, one or more merchant bankers in Amsterdam would make the loan and then retail shares in their holdings of the loan on the Amsterdam Stock Exchange.

<sup>13</sup> Tracy J. (1985). *A financial revolution in the Habsburg Netherlands*. Berkeley: University of California Press.

<sup>14</sup> See Neal, L. (1990). *The rise of financial capitalism: International capital markets in the age of reason*. Cambridge: Cambridge University Press, chap. 3.

<sup>15</sup> Riley, J.C. (1980). *International government finance and the Amsterdam capital market, 1740–1815*. Cambridge: Cambridge University Press.

Hence, in the 1780s, several houses provided quotations for American securities, and in order to encourage small investors to purchase shares, each house maintained a resale market for their holdings. For example, for years after the American Civil War, one banker, who had been responsible for marketing Confederate bonds in Amsterdam, continued to offer to repurchase them from his customers at a fraction of their original face value. In this way, foreign securities could be marketed to local investors—the forerunner of American Depositary Receipts.

The Amsterdam stock market was exceptional, but it was devastated by the French occupation (1795–1813), and it took decades for it to recover. In fact, it was only in 1878 that it was reorganized, and by that time, both the London and Paris exchanges had become the world's major markets for foreign securities, still mainly government and railroad bonds. In general, stock markets only entered into trade in foreign securities when the market for the existing domestic securities turned down, and traders looked for new products to entice back their former customers or to attract new customers. For example, when, in 1801, the London Stock Exchange was incorporated, the broker Edward Wetenhall, published a semiweekly broadsheet, *The Course of the Exchange*—a publication that reported the listed securities and their prices. These securities were almost exclusively either government bonds or the shares in the great chartered companies that held permanent government debt—the Bank of England, the East India, and the South Sea. The three together comprised “the Funds.” However, after the financial crisis of 1810, Wetenhall's price list was greatly expanded to include public utilities, canals, docks, waterworks, and even railways (still horse-powered) connecting mines to ports. His intent was to advertise the full range of securities dealt with by the members of the exchange so that customers suffering losses in the downturn of the market might choose to diversify their holdings, rather than entirely withdrawing their business from the exchange.

When, in 1812, the rules of the exchange were formally codified, Wetenhall was authorized to list prices, and he reported every change in a transaction price over the course of each trading day. His purpose was to provide a public record of the transactions that had occurred in case of dispute over settlement of any particular “bargain.” The operators of the exchange were not primarily interested in assuring their clients that they had obtained the best possible price for their order, although the public printing and distribution of the price list certainly had that effect. Rather, the Committee of General Purposes wanted a clear record of the original price so that when accounts between members were settled (first quarterly, then monthly, then fortnightly as the century progressed), it would be clear to each broker and dealer how much was owed on a particular transaction. Accounting standards were not an issue.

The London and Paris exchanges initiated their forays into foreign securities in precise imitation of the earlier Dutch practice. In 1817, Alexander Baring opened a book for London investors wishing to purchase part of the flotation of the French rentes that were issued to pay off French reparations and the costs of the British occupation. Rothschilds, cut off from participating in either the 1817 or 1818 loans, and in 1821 accused (unfairly) of sabotaging the possibility of a final loan to pay for the removal of Wellington's troops from French soil, were nevertheless able to manage the initial issue of a stunning series of loans. Over the next



two decades, the firm “underwrote” loans to Austria, the Kingdom of Naples, Prussia, Russia, and Brazil. These loans proved immensely profitable to the merchant bankers in London and Paris, and especially to the Rothschilds.<sup>16</sup>

With the success of the French loans, the London Stock Exchange opened its arms to the two types of foreign securities that they could legally trade under existing British law—namely, government bonds and mining shares established on a “cost book” system under the Stannaries Laws. In the 1820s, the breakup of the Spanish Empire in Latin America led to the first Latin American debt crisis and to the London stock market boom, and bust, of 1825. Likewise, in 1822, the Paris Bourse was allowed to list foreign securities. Its members quickly took advantage of the knowledge, contacts, and wealth of the Spanish-American emigrés who had established themselves in Paris. In both markets, the securities that underwrote both the boom and the bust were the bonds issued by the newly independent Latin American colonies of Spain and the shares in Spain’s mines. None of the newly independent countries proved capable of even making interest payments on their issues, and the mines proved that, without Spanish subsidies, they were no longer profitable or even workable.<sup>17</sup> Thereafter, and especially after the widespread defaults of American states in the 1830s, London stockbrokers were much more cautious about foreign loans, gradually following the lead of Rothschild and Baring in lending only to well-established governments.<sup>18</sup> Similarly, until the revolution of 1848, the Paris Bourse focused on government loans to members of the Holy Alliance.

## 5. Beyond government securities in foreign listings

By the middle of the 19th century, the potential profitability of railroad finance led to the listing of foreign railroads on the various exchanges of Europe. In 1854, for example, shares of the Illinois Central were initially placed in the Amsterdam stock market because the promoter found the London market swamped by the need to finance the Crimean War.<sup>19</sup> By 1873, enough British investment had found its way into foreign lands, mainly in the form of government and railroad bonds, to make it profitable to establish the private Council of Foreign Bondholders. The Council monitored the performance of each issuer and provided the institutional mechanism to permit debt holders to make common cause against any defaulters.

<sup>16</sup> Ferguson, N. (2000). *The house of Rothschild: Money's prophets, 1798–1848*. London: Penguin Books, chap. 4.

<sup>17</sup> Neal, L. (1998, May–June). The financial crisis of 1825 and the restructuring of the British financial system. *The Federal Reserve Bank of St. Louis Review* 80, 53–76; Dawson, F. (1990). *The first Latin American debt crisis. The city of London and the 1822–25 Loan Bubble*. New Haven, CT: Yale University Press.

<sup>18</sup> As late as 1934, British holders of Mississippi bonds issued in 1833 and 1838 brought suit to the U.S. Supreme Court that they should be redeemed! (*Monaco vs. Mississippi Collection*, University of Southern Mississippi McCain Library, <http://www.lib.usm.edu/~archives/ml79.htm> [accessed September 8, 2001]).

<sup>19</sup> Veenendaal, A. J. (1996). *Slow train to paradise: How Dutch investment helped American railroads*. Stanford, CA: Stanford University Press.



During the third quarter of the 19th century—a period that includes the shocks of war finance imposed first on Great Britain (the Crimean War of 1854), then on the United States (the Civil War, 1861–1865), and finally, on France and Germany (the Franco-Prussian War of 1870)—all four countries had established freedom of incorporation with limited liability for shareholders (Great Britain in 1855 and 1862; United States in 1860 and 1875, France in 1863 and 1867, Germany in 1870).<sup>20</sup> In all four countries, free incorporation meant an opportunity for industrial firms to grow in order to meet the challenges and opportunities of the expanded market size that the growth of railroad networks had created. In addition, it would be obtuse to overlook the significance of the military conflicts in motivating the four governments to create powerful firms in military strategic sectors. These new behemoths were centered in railroads, coal, steel, steamship lines, and heavy machinery.

Despite the common motivation and the closeness of timing in initiating the expansion of the corporate form of business among the four industrial powers, the scale and scope of their incorporations varied widely. Because free incorporation was allowed by Massachusetts as early as 1813, the United States took an early lead. Under U.S. law, these Massachusetts corporations were allowed to operate in other states. Given the Massachusetts “loophole,” free incorporation, as opposed to incorporation by specific charter, became widespread in other states only after the Civil War.<sup>21</sup> By contrast, France and Germany had maintained strict control over corporate charters until the post-midcentury reforms. For both Great Britain and the United States, in terms of obtaining external finance, before midcentury, the legal restrictions on forms of business enterprise were much less constraining than in France and Germany.

Harris (2000) has argued that the corporation was, in fact, very important in providing finance for British business even before the legislation of 1844—legislation that began the process of establishing the legal basis for creating corporations throughout the economy. From the time of the Bubble Act of 1720, corporations were permitted in public utilities that had a specific location and function—canals, turnpikes, docks, water works, gas works, and ultimately, railroads. The success of these utilities actually underwrote the increase in the public's confidence in the feasibility of the corporate form, and the repeal of the Bubble Act in 1825 should have allowed them to spread to other sectors. That they did not reflected the ease of establishing extended copartnerships and business trusts—organizations in which passive partners could limit their liability to the amount of capital they had invested.

Only when limited liability was extended to corporations in the legislation of 1855 and 1862 did corporations begin to form in significant numbers in the manufacturing and service sectors of Great Britain. However, even then, the pace of incorporation did not really pick up until the 1890s. Earlier, ample finance was available to British industrial and commercial firms through copartnerships and trusts; both could provide limited liability for some equity holders. By 1906, however, Great Britain had 40,995 joint-stock companies, many more than

<sup>20</sup> Horn, p. 182 in Horn, N., & Kocka, J. (1979), *Law and the formation of the big enterprises in the 19th and early 20th centuries*. Göttingen: Vandenhoeck & Ruprecht.

<sup>21</sup> Evans, G. H. (1948). *Business incorporations in the United States*. New York: National Bureau of Economic Research.

the rest of Europe combined, although their average capital of £48,786 was much less than that of corporations in France (£85,375) or those in Germany (£135,349).<sup>22</sup> The United States, however, was already in a league by itself. By 1916, the earliest year for which we have reliable figures for the entire country, there were no fewer than 341,300 corporations. (*Historical Statistics, U.S. Department of Commerce*, p. 914)

The contrast between the Anglo-American and the continental European modes of financing was striking. Within the Anglo-American mode of finance—a mode that emphasized recourse to formal capital markets—the United States had a much larger number of corporations than Great Britain, and within the continental European mode—a mode that relied on investment banks—German corporations were much larger than those in France. Part of the difference can be explained by the larger size of the U.S. and German economies relative to those of Britain and France. However, part of the explanation lies in the differences in the political structures—Great Britain and France possessed strong central authorities—authorities able to control the numbers and size of their corporations; the United States and Imperial Germany had both federal and fragmented local political authorities—authorities that competed for regulatory rents. In the first half of the 19th century, the individual states in America competed enthusiastically in creating special charters for corporations, while the separate political units within the German Zollverein competed in granting concessions to railroads, ironworks, and coal mines during the “Gründungszeit”—a period that spanned the years from 1850 to 1873.

Not only did the legal environments produce differences among the four powers in the way that they governed the creation of the new corporations, but those differences, in part, also account for the techniques that each country found best suited to employ in placing their new securities. In Great Britain and the United States, the bankers and attorneys of the new firms had to turn to specialists operating in their respective stock exchanges to take the initial placements. In both countries, regional stock exchanges became increasingly important, for they provided specialists as well as a subsequent secondary market for local securities. Typically, banks were excluded from direct participation in the stock exchanges as traders. It was thus up to brokerage firms—firms with formal or informal contacts with other exchanges—to widen the market for their local securities. By contrast, in France and Germany, it was the new credit or investment banks that took on the task of initial placement. In Germany, they could trade on their own account in the stock exchanges, and in France, they could operate indirectly on the *Coulisse*, a complementary exchange located on the outskirts of the formal exchange (the *Parquet*). In the *Coulisse*, the investment banks soon came to dominate trading. The importance of the great banks in handling corporate securities in both France and Germany, as well as the preferences each government gave to its central exchange, meant that regional exchanges quickly dropped out of sight, and only the Paris and Berlin stock exchanges remained important markets for corporate securities. What government favoritism did for Paris and Berlin, the rapid expansion of telegraph networks in the

<sup>22</sup> Michie, R. C. (1998, January). Different in name only? The London Stock Exchange and foreign bourses, c. 1850–1914. *Business History* 30, pp. 46–68, p. 52, citing Webb, A. D. (1911). *The new dictionary of statistics*. London: Routledge and Sons, 1911, p. 145.



United States and Great Britain did for New York and London. In those latter cities, the central exchanges gradually displaced the provincial exchanges in importance.

While the focus of the provincial exchanges was largely domestic, they were not completely immune to the lure of foreign investment. London remained by far the most important center for foreign government issues, but a few small issues of Mexican, Egyptian, Brazilian, and Spanish governments were quoted in Liverpool and Manchester. Those exchanges were relatively much more involved in overseas railway and mining activity. As early as the 1850s, both Leeds and Sheffield listed almost as many foreign mines as did London, and from 1886 onwards, Leeds again became a center of overseas mining activity. During the 1894–1895 mining boom, nearly 50 foreign mines were listed on that city's "Unofficial Mining Board." Because of the local interest in "Kaffirs" (South African gold stocks), that board was called everyday immediately after the official reading of listed securities. Again, towards the end of the century, as American rails became increasingly popular with British investors, the Liverpool and, to a lesser extent, the Manchester exchanges became active centers. Liverpool, because of its position in the American trade, was actually able to actively compete with London.<sup>23</sup>

The first explosion of incorporations in each country underwrote both the new railroad companies and their issues of securities. In each case, the formal stock exchanges played a major role in creating and sustaining a market for those new securities. Initially, these issues were shares in the capital stock of the railroads, but then, increasingly, as construction and improvement expenses quickly outran initial estimates, they were bonds. Both the shares and the bonds were marketed in ways that mimicked, as closely as possible, the features of the existing public securities that were available to investors in each country.<sup>24</sup> Only later did industrial securities become an important part of the business transacted on the major formal stock exchanges in the four cities. Before industrial securities were admitted to the central exchange, they had to be seasoned in their immediate markets, and seasoning meant the regional exchanges came to be dominated by local bankers—bankers who knew the business plans and abilities of the new firms.

In France, it was only after regulatory reforms in 1898—reforms that enlarged the role of the formal relative to the informal markets—that the Paris Bourse turned toward foreign industrial securities. In contrast, in Germany, the legal reforms of 1896—reforms designed to protect outside investors from the speculative collapses that had occurred in 1890 and 1893—forced the Berlin Stock Exchange to focus more on domestic and government securities.<sup>25</sup> In both cases, it was the political interests of the government that determined how the two exchanges did or did not respond to the opportunities for foreign investment. Under civil law regimes, traders in both the Paris and Berlin exchanges had to accede to the will of their political masters.

<sup>23</sup> Thomas, W. A. (1973). *The provincial exchanges*. London: Frank Cass, pp. 188–190.

<sup>24</sup> This was remarked at the time by contemporaries and is emphasized most recently in Baskin and Miranti (1997).

<sup>25</sup> The new German law placed severe restrictions on time dealings, restrictions that were especially burdensome for dealings in foreign securities, even after the law was revised in 1908. Time dealings by German banks then moved to the Amsterdam and London markets.



The exchanges in New York and London, having arisen spontaneously as self-regulating organizations, were able to sustain their independence from regulatory constraint by the state, and both responded in self-interested ways to the opportunities offered the newly created market for the securities issued by private corporations. Self-interest, however, played out in quite different ways in the two countries—ways that again reflected the profound differences in the political environment of a country controlled by a central authority and one structured as a federal system. In the mid-1890s, the NYSE, in order to face the competition arising from the other U.S. stock exchanges—located both in other states and in New York City—instituted a series of internal changes that allowed it to become the dominant national stock exchange. Those changes permitted it to list industrial securities that had been “seasoned” on a regional exchange or on the curb market in New York. The only “foreign” securities listed on the NYSE before World War I were the municipal bonds of the city of Quebec; at the time, Quebec was regarded as nothing but a satellite banking center of New York City.<sup>26</sup> London also instituted major changes in its microstructure in the 1890s. Again, the changes were made with the intent to dominate the provincial exchanges, but they had the unintended effect of emphasizing the London Stock Exchange’s role as the British marketplace for foreign securities.

## 6. Implications for regulation

In England, periodic crises led to parliamentary investigations of the practices of the self-regulating London Stock Exchange. These investigations typically ended with minor pieces of legislation designed to both placate the upper classes and to preserve the existing microstructure of the exchange. Moreover, Parliament’s major acts always served to enlarge the possible scope of trading activity for the London Stock Exchange. For example, it repealed the Bubble Act of 1720 in the middle of the crisis year of 1825. Then, the Joint Stock Companies Act of 1844 encouraged the formation of joint stock companies in general, and led, in 1856, to the passage of Lowe’s Act that established limited liability for joint stock corporations. True, some acts restricted speculative practices of one kind or another, but these were consistently ignored. The Members of the Exchange were far more responsive to sanctions imposed by the Committee on General Purposes than to the possibility of losing lawsuits brought by outsiders.<sup>27</sup> Only jobbers, who always acted as principals in the transactions, were really subject to the laws that governed the enforcement of contracts.

In New York, stock market panics also produced investigations, but until the change in national politics—changes partially induced by the Panic of 1907—produced the “money

<sup>26</sup> Meeker, J. E. (1922), *The work of the stock exchange*. New York: Ronald Press, p. 160.

<sup>27</sup> After the end of the Napoleonic Wars, some members of the exchange petitioned to outlaw dealings in options, on grounds that they violated Barnard’s Act of 1734, which forbade time dealings unless the seller had physical possession of the security throughout. The majority of the members, led by Jacob Ricardo, defended option dealings, noting that Barnard’s Act had been violated constantly by members of the exchange ever since its passage, with no one ever being brought to court. (Minutes of the Committee for General Purposes, 1821, Guildhall Library, MS 14600/9, ff. 176–183).

trust” investigation, the investigations had been conducted only by the state legislature. The state legislators in Albany were easily and frequently bribed into rescinding threatened regulations. As a result, the regulations of the NYSE were revised only in response to the threat of competition from other exchanges—the consolidated and curb markets in New York or the regional exchanges elsewhere in the country. In the last decade of the century, the NYSE was able to institute two rule changes that strengthened the exchange’s imprimatur of quality, but that competitive threats had previously prevented the Governing Committee from implementing. In 1892, after three failed attempts, the governors finally established a clearing mechanism—a mechanism that, by the end of the century, included almost all listed securities.<sup>28</sup> In 1895, the Governing Committee voted to require that listed companies file annual reports, although it is clear that their word was still not law—they received no reports in either 1895 or 1896. By 1900, however, annual reports, including both audited balance sheets and profit and loss statements, became a prerequisite both for initial listing and for retaining that listing.<sup>29</sup>

In France, the regulatory role played by government obviously varied with the radical changes of regime during the years 1789–1914, but even these changes affected the role of the *Coulisse* far more than that of the *Parquet*. The relative stability of the *Parquet*, in turn, can be attributed to the organizational strength of its governing body, the *Compagnie des Agents de Change*. During the course of the French Revolution, the *Compagnie* was outlawed along with all other guilds, but Napoleon reestablished it in 1801. Eighty individuals were given indefinite tenure when they provided adequate security bonds. The internal cohesion of the *Compagnie* was further strengthened when, in 1816, the Restoration government of Louis XVIII asked the individual agents that still remained (their number had dwindled to 50 at the end of Napoleon’s reign) to put up an additional purchase price to retain their offices. At that time, the fee was raised by law from 100,000 francs to 125,000. In return, however, the government made it possible for each agent de change to name his successor. Thus, while the government continued to control the nomination and the disposition of the title, the current titleholder had a property right that could be sold. Possessing heritable rights to their monopoly of the securities trade, the agents de change were no longer civil servants named for life, but public officers with specific powers delegated to them. The same act of 1816 also strengthened the self-governance of the *Compagnie*: it restored the *Chambre syndical* that enjoyed the triple powers of recruitment, discipline, and regulation. The corporate solidarity that naturally arose within the *Compagnie des Agents de Change* enabled them to exercise effective influence on the successive governments and, thus, to maintain their privileged position within France. The power of the Minister of Finance over the operation of the *Bourse* was effectively conceded to the *Compagnie*.

<sup>28</sup> Sobel, R. (1965). *The Big Board: A history of the New York Stock Market*. New York: The Free Press, p. 131 and Wilson J. G. (1969). The stock exchange clearing house. In E. C. Stedman (Eds.), *The New York Stock Exchange: Its history, its contribution to national prosperity, and its relation to American finance at the outset of the twentieth century*. New York: Greenwood Press, pp. 423–32.

<sup>29</sup> Sobel, pp. 123 and 177.



In Germany, the explosion of corporations that occurred after the founding of the Reich and the receipt of 5 billion francs in reparations from the defeated French nation led to speculative manias that ended in the *Gründungskrise* of 1873. That crisis was certainly abetted by the new law governing the creation of corporations that had been passed on June 11, 1870. This legislation was the high point of the move to liberalize the marketing of corporate shares, and to this day, it has sealed the interdependence of banks and industry. Especially noteworthy were the rise of new joint-stock banks. In the first 2 years of the new German Reich, 107 joint-stock banks were formed—banks with total capital of 740 million marks.<sup>30</sup> By the end of 1873, 73 of them were in liquidation.<sup>31</sup> The first reaction of the government was to protect the earnings of the remaining corporations by raising customs barriers, but in 1884, a new law defined the distinctive features of German corporations. Each corporation had to form a governance structure with three distinct parts and functions. The managing board of directors (*Vorstand*) and a general assembly of stockholders (*Generalversammlung*) were features common to all four countries, but the oversight board with heavy representation of outsiders representing labor, government, the general public, and banks (*Aufsichtsrat*) was peculiar to Germany.

Like the French reforms of 1898, the stock market crises of the early 1890s led to further major reforms in Germany. Like the French law, the German reform outlawed the informal exchanges (the so-called *Winkelbörsen*) that had sprung up around the formal exchange, and it asserted that only transfers validated on the formal exchange had standing in legal disputes. It went further, however, by also outlawing uncovered, or short sales, of securities. As a result, trading in corporate securities tended to move, not merely out of Berlin, but out of Germany, to the more friendly confines of the Amsterdam and London stock exchanges. In retrospect, it seems that the formation of the *Kommission für den Börsenenquête*—a commission that included only token representation from members of the stock exchange and that was heavily weighted with representatives of agricultural interests eager to do anything to raise agricultural prices—was responsible for this outcome. However, in terms of German history, given that the concerns of all potential interest groups had long been represented in the composition of the *Aufsichtsraten*—the board charged with overseeing the governance of each corporation—the broad composition of the commission was logical even if wrong for dealing with the specific practices of stockbrokers and dealers.

## 7. Then and now

This brief overview of the distinctive characteristics of the world's four leading security exchanges in the 19th century demonstrates that, even in the case of the most highly developed and most efficiently functioning markets of the first global economy, their legal and political environments led them to adopt different ways to perform essentially the same operations. If the legal environment was broadly similar, as it was for Great Britain and the

<sup>30</sup> Gömmel, R. (1992). Entstehung und Entwicklung der Effektenbörse im 19. Jahrhundert bis 1914. In H. Pohl (Ed.), *Deutsche Börsengeschichte*. Frankfurt am Main: Fritz Knapp Verlag, p. 154.

<sup>31</sup> Gömmel, p. 156.



United States, the political environment led to a different structure of their capital markets. By the end of the 19th century, moreover, the legal environments of the two countries had become distinctive in important ways, even though both had evolved from the same base—18th century English common law. In Britain, court decisions on the powers of self-governance by trade groups clearly favored the freedom of those groups to make and enforce contracts among themselves. In the United States, the courts and legislatures tended to make contracts unenforceable, or even illegal, if they infringed on the freedom of competitors to enter the trade. Regional exchanges flourished in both countries. In Great Britain, they never competed with the central exchange in London for primacy, but in the United States, it took the Civil War to establish the permanent preeminence of the New York exchange over the older exchanges of Philadelphia and Boston and then, the rising exchanges of Cincinnati and Chicago. Further, differences in the original definition of property rights in the marketplaces meant that while the NYSE had a constant battle to establish and then maintain its primacy as the central marketplace, even in New York City, the London Stock Exchange was able to encompass all the business in London and place the regional exchanges in a complementary, rather than competing, role throughout almost the entire 19th century. In 1912, however, when the members of the London Stock Exchange established minimum commissions and forbade jobbers to shunt business from other exchanges, the complementary role of the provincial exchanges was threatened. Banks and other financial institutions were expressly forbidden from participating in the British exchanges, although the few originally entering as proprietors were grandfathered in. On the American exchanges, financial institutions were able to form partnerships with brokerage firms or buy seats directly until the regulatory reforms of the 1930s.

On the continent, where the legal environment provided statutory monopolies for the stock exchanges of Paris and Berlin, the political environments were again sufficiently distinct that the roles played by the central exchanges were different. In Paris, over the century, a small group of agents de change had become very tightly organized as a self-regulating *Compagnie*, and they were able to call upon the enforcement powers of the state to maintain their monopoly. As a result, the rules of the Paris Bourse remained essentially unchanged from the time of Napoleon until the breakup of its monopoly under pressure from the European Community in the late 1980s. By contrast, in Berlin, where open access was required from the beginning, different interest groups were drastically able to alter both the rules of operation on the exchange and the role that it played in the process of national capital mobilization.

In the current episode of expanding global financial markets—an expansion that started at the end of the Bretton Woods monetary regime in 1971—each market has made unique contributions and responded to competitive challenges in characteristic ways. The NYSE, while still limiting members, now promotes competitive brokerage commissions. Moreover, the resulting increase in volume has more than made up the loss of revenue from reduced commissions. The NYSE also generates increased revenue from charges imposed on the companies whose securities are listed and traded and from selling its information services to other exchanges and to nonmember firms. In 1973, the London Stock Exchange absorbed all the stock exchanges in the United Kingdom and the Republic of Ireland and renamed itself the International Stock Exchange. In 1986, it moved dramatically toward the New York

model with the so-called “Big Bang”—the fallout from the “Bang” allowed its traders to act in the double capacity of brokers and jobbers, and it eliminated minimum commissions. In 1966, the Paris Bourse allowed its agents de change to reform themselves as joint stock corporations so that they could greatly expand their scale of business. One result of this change was that the now larger Paris market was able to absorb the French provincial exchanges. At the same time, the number of firms fell from 83 to 61, nearly the same figure that Napoleon had created in 1808. Furthermore, no foreigners were allowed to hold seats. After World War II, as the regional exchanges led by Frankfurt came back to prominence, the Berlin Börse had essentially stopped functioning. This time, however, all the German exchanges limited entry to banks and maintained fixed commissions. As a result, the problem of the postwar decade was not so much dealing with the pressures from the nonfinancial community (although forward trading was not allowed until very recently), but with the jealousy with which each regional exchange tried and still tries to protect its niche market.<sup>32</sup>

In recent years, the Frankfurt and Paris exchanges have shown themselves to be the most innovative and aggressive in their attempts to expand their markets by increasing the equity holdings of their citizens. As recently as 1991, despite a resurgence of activity after the collapse of the Berlin Wall and the reunification with East Germany, the capitalization of domestic equities amounted to only 26% of German GDP, compared to 62% for the United States and 120% for the United Kingdom. In 1993, 10 of the nearly 800 stocks listed in German Exchange accounted for 63% of the trading volume. Only a bit over 5% of the German population actually held any stocks, a figure that compares to over 16% in France and 21% in the United States and United Kingdom. While the situation has improved considerably over the past decade, much still remains to be done. The lessons of the first global financial market show that it will be largely up to the exchanges themselves to make the necessary changes to reassure outside investors that they should become regular customers. The common law environment helps, as does the fear of competition in an environment where decisions are largely the product of a relatively free market rather than of a government monopoly.

## **Appendix A. Listing regulations for major stock exchanges in the first global financial market**

**London:** [Source: *Rules and regulations of the London Stock Exchange*. London: The Stock Exchange, 1906, Appendix “Official Quotations”]

### **A. Conditions precedent to an application for official quotation. [p. 96]**

#### **(1) That the Prospectus**

Shall have been publicly advertised;

<sup>32</sup> See summaries in Economist Publications, *Directory of world stock exchanges*, for Frankfurt, London, New York, and Paris, and Schwartz R. (1991). *Reshaping the equity markets*. New York: Harper Business, chap. 4–5.



Agrees substantially with the Act of Parliament or Articles of Association;  
Provides for the issue of not less than one-half of the authorised capital and for the payment of 10% upon the amount subscribed.

If offering Debentures or Debenture Stock, states fully the terms of redemption.

In cases where a Company has sold an issue of Debentures or Debenture Stock which is subsequently offered for public subscription either by the Company or any subsequent purchaser, states the authority for the issue and all conditions of sale.

- (2) That two-thirds of the amount proposed to be issued of any class of Shares or Securities, whether such issue be the whole or a part of the authorised amount, shall have been applied for by and unconditionally allotted to the public, Shares or Securities granted in lieu of money payments not being considered to form a part of such public allotment.
- (3) That the Articles of Association, and the Trust Deed where such is required, contain the provisions specified hereafter.
- (4) That the Certificate or Bond is in the form approved. [p. 97]

## **B. Articles of association**

Articles of Association should contain the following provisions:

1. That none of the funds of the Company shall be employed in the purchase of, or in loans upon the security of its own shares;
2. That Directors must hold a share qualification;
3. That the borrowing powers of the Board are limited;
4. That the non-forfeiture of dividends is secured;
5. That the common form of transfer shall be used;
6. That all Share and Stock Certificates shall be issued under the Common Seal of the Company;
7. That fully paid Shares shall be free from all lien;
8. That the interest of a Director in any contract shall be disclosed before execution, and that such Director shall not vote in respect thereof;
9. That the Directors shall have power at any time and from time to time to appoint any other qualified person as a Director either to fill a casual vacancy or as an addition to the Board, but so that the total number of Directors shall not at any time exceed the maximum number fixed; but that any Director so appointed shall hold office only until the next following Ordinary General Meeting of the Company, and shall then be eligible for reelection;
10. That a printed copy of the report, accompanied by the Balance Sheet and Statement of Accounts, shall, at least seven days previous to the General Meeting, be delivered or sent by post to the registered address of every member, and that two copies of each of these documents shall at the same time be forwarded to the Secretary of the Share and Loan Department, The Stock Exchange, London;
11. That the charge for a new Share Certificate issued to replace one that has been worn out, lost, or destroyed shall not exceed one shilling.



### C. Trust deeds

Trust Deeds should contain the following provisions:

1. Where provision is made that the security shall be repayable at a premium, either at a fixed date or at any time upon notice having been given, the Trust Deed must further provide that should the Company go into voluntary liquidation for the purpose of amalgamation or reconstruction the security shall not be repayable at a lower price. [p. 98]

**New York:** [Source: Meeker, J. E. (1922). *The work of the stock exchange*. New York: The Ronald Press, pp. 577–80].

Every application for an original listing of capital stock shall recite:

- A. Title of corporation
- B. (1) State authorizing incorporation; (2) (a) date, (b) duration, (c) rights.
- C. (1) Business; (2) special rights or privileges granted directors by charter or by-laws.
- D. (1) Whether capital stock is fully paid; (2) non-assessable; and (3) liability attaching to stockholders.
- E. (1) Issues (by classes), dividend rate and par value; (2) total amount of each, authorized and issued; (3) increases and authority therefore, including 9a) action by stockholders, (b) by directors and (c) by public authorities, et.; (4) amount unissued, (a) options or contracts on same, (b) specific reservation for conversion.
- F. If preferred stock; (1) whether cumulative or non-cumulative; (2) preferences, including (a) voting power; (b) dividends; (c) distribution of assets on dissolution or merger; (d) redemption; (e) convertibility.
- G. Voting power of obligations of debt.
- H. (1) Purpose of issue; (2) application of proceeds; (3) amount issued for securities, contracts, property; description and disposition; (4) additional property to be acquired, with particulars, as required by paragraph M.
- I. (1) History of corporation; (2) of predecessor companies, or firms, with location and stock issues; (b) conditions leading to new organization.
- J. Tabulated list of constituent, subsidiary, owned or controlled companies showing (a) date of organization; (b) where incorporated; (c) duration of charter; (d) business and (e) capital stock issues (by classes), par value, amount authorized, issued, owned by parent company.
- K. (1) Mortgage, and (2) other indebtedness, (a) date, (b) maturity, (c) interest rate, (d) redemption by sinking fund or otherwise, (e) amount authorized, and (f) amount issued; (3) similar information regarding mortgage and all indebtedness of constituent, subsidiary, owned, or controlled companies.
- L. Other liabilities, joint and several, (1) guaranties, (2) leases, (3) traffic agreements, (4) trackage agreements, (5) rentals, (6) car trusts, etc., (7) similar description of other easements; (8) terms of each, and provision for payment; (9) similar information as to constituent, subsidiary, owned or controlled companies.
- M. (1) Description, location, nature and acreage of property, (a) owned in fee; (b) controlled; (c) leased; (2) railroads, mileage completed, operated and contemplated; (3) equipment; (4) character of buildings and construction; (5) tabulated list of franchises showing (a) where

- granted, (b) date, (c) duration, (d) purpose; (e) timber, fuel or mining lands, water rights; (f) similar information as to constituent, subsidiary, owned or controlled companies.
- N. Policy as to depreciation.
- O. (1) Character and amount of annual output for preceding five years; (2) estimated output (character and amount) for current year; (3) number of employees.
- P. (1) Dividends paid; (a) by predecessor, and constituent, subsidiary, owned or controlled companies.
- Q. Financial statements: (1) earnings for preceding five years, if available; (2) income account of recent date for at least one year, if available; (3) balance sheet of same date; (4) similar accountings for predecessor, constituent, subsidiary, owned or controlled companies; (5) corporations consolidated within one year previous to date of application, income account and balance sheet of all companies merged and balance sheet of applying corporation; (6) if in hands of receiver within one year previous to date of application, (a) income account and balance sheet of receiver at time of discharge, and (b) balance sheet of company at close of receivership.
- R. Agreements contained on page 5.
- S. Fiscal year.
- T. Names of (1) officers; (2) directors (classified) with addresses; (3) transfer agents and (4) registrars, with addresses.
- U. Location of principal and other offices of corporation.
- V. Place and date of annual meeting.

*In addition to the above, applications from corporations that own or operate mines must recite:*

- A. Patented and unpatented claims, by numbers.
- B. (1) Geological description of country; (2) location and description of mineral and other lands; (3) ore bodies; (4) average value of ore; (5) character; and (6) methods of treatment.
- C. History of workings: (1) results obtained; (2) production each year.
- D. (1) Ore reserves compared with previous years showing separately as to character and metal content; (2) estimates of engineer as to probable life of mines; (3) probabilities by further exploration.
- E. (1) Provisions for smelting and concentration; (2) cost of (a) mining, (b) milling and smelting, (c) transportation; and (3) proximity of property to railway or other common carrier.
- F. Properties in process of development; income account if available; guaranties for working capital and for completion of development.
- G. Total expenditures for preceding five years for acquisition of new property, development, proportion charged to operations each year.
- H. (1) Policy as to depletion; (2) acquisition of new property; (3) new construction and development.
- I. Annual reports for preceding five years, showing number of tons of ore treated, average assay, yield, percentage of extraction, recovery per ton of ore.



*In addition to the above, applications from corporations that own or operate oil and gas wells must recite:*

- A. (1) Brief history of oil fields; (2) character and gravity of oil.
- B. (1) Total area of oil land (developed and undeveloped), (a) owned, (b) leased, (c) controlled, (d) proven, (e) under exploitation, (f) royalties.
- C. (1) Number of wells (oil or gas) on each property, (a) in operation, (b) drilling, (c) contemplated; (2) average depth of wells drilled (a) shallowest, (b) deepest, (c) probable life; (3) whether oil sands are dipping.
- D. (1) Gross daily production-initial and present; (2) annual gross production from each property for past five years, if available; (3) estimated output for current year.
- E. (1) Storage, capacity and location; (2) (a) amount of oil stored, (b) character, (c) value; (3) pipe line, (a) gauge, (b) capacity, (c) mileage.
- F. (1) Refineries, (a) capacity, (b) acreage, (c) employees (d) products and by-products.
- G. Properties in process of development, income account if available, guaranties for working capital and for completion of development.
- H. Total expenditures for preceding five years for acquisition of new property, well drilling and development, proportion charged to operations each year.
- I. (1) Policy as to depletion; (2) acquisition; and (3) development of new properties.

**Paris** [Source: Greenwood, W. (1921). *American and foreign stock exchange practice stock and bond trading*. New York: Financial Books, pp. 754–760]

**Regulations as to issues of French and foreign shares and bonds in France  
(Law of Finance of 30th January 1907, and the Decree of 27th February 1907)  
Clause 3 (Law of 30th January 1907)**

The issue, the exhibition, the placing on sale, and the introduction on the market, in France of all shares, bonds, or securities of any kind whatever, of French or foreign companies, are, so far as concerns securities offered to the public after 1 March 1907, subjected to the following formalities:

The persons issuing, exhibiting, or placing such securities on sale, and the introducers of them on the market, must, previous to taking any steps towards advertising, insert a notice containing the following details in the Supplement to the *Journal Officiel*, the form of such notice to be settled by decree. (The Decree of 27 February 1907 follows this section).

- (1) The designation of the company, or its trading name.
- (2) A statement as to the legislation (French or foreign) under which the company's operations are carried on.
- (3) The address of the head office of the company.
- (4) The object of the undertaking.
- (5) The period for which it is formed (duration of the corporation).
- (6) The total amount of its capital stock, the amounts of each of the different classes of shares, and the amounts still unpaid on such shares.



- (7) A certified copy of the last balance sheet, or a statement that no balance sheet has been prepared.

There must also be stated the amount of any bonds that have been issued by the company, with details of any charges or guarantees given in connection with them.

If a new issue of bonds is to be made, there must be stated the quantity as well as the value of the bonds to be issued, the interest to be paid on them, the date of redemption, and the conditions and the guarantees given to secure the series of bonds to be issued.

Mention must also be made of any profits or advantages granted to vendors, directors, managers, and any other persons; the assets brought into the company by vendors and the method of payment for same; the formalities necessary for the calling of the general meetings; and their place of meeting.

The persons who issue, offer, or place on sale, and the introducers of such securities, must be domiciled in France; they must sign the above-named notice with their names and addresses.

All poster, prospectuses and circulars must reproduce the statements of the notice named, and must contain a mention of the insertion of the said notice in the Supplement of the Journal Officiel, giving a reference to the number of the issue in which the notice has appeared.

The advertisements in newspapers and periodicals must reproduce the same statements, or, at least, an extract of the statements with reference to the said notice, and must indicate the number of the Journal Officiel in which it has been published.

Every foreign company which makes a public issue in France, or offers, places on sale, or introduces shares, bonds, or securities of any kind whatever, must, in addition, publish its articles of incorporation in full, in the French language, in the Supplement of the Journal officiel, previous to the placing or offering of the securities.

Breaches of the above regulations are to be declared by the officials of the Registry Department; such breaches may be punished by fines of from 10,000 frs. to 20,000 frs. (\$2000 to \$4000).

Clause 463 of the Penal Code is to be applicable to the fines named in the present clause.

#### **DECREES OF THE 27TH FEBRUARY 1907**

##### **Respecting the Offering for Sale, in France, of French and Foreign Shares and Bonds (Including American Stocks and Bonds)**

**Clause 1.** The insertions named in Clause 3 of the Law of Finance of the 30th January 1907 are to be published in the Supplement attached to the Journal Officiel, under the title of the "Bulletin Annexe au Journal Officiel de La Republique Française" (supplement to the Official Journal of the French Republic).

These compulsory notices are to be paid for by the companies.

**Clause 2.** The charge for the insertions is fixed at 2 frs. (38 1/2 cents) per line "de corps sept," the ordinary line of the Journal Officiel being taken as the basis.

**Clause 3.** The Supplement will appear weekly, on Mondays. Insertions must be signed by the persons responsible for such notices, and delivered at the latest on the previous Wednesday, at the offices of the Journal Officiel.

**Clause 4.** The Supplement will be delivered, without extra payment, to the subscribers to the complete edition of the Journal Officiel.

The price of subscription to the Supplement, only, is fixed at 12 frs. (\$2.332) for France, Algeria, and Tunis, and 18 frs. (\$3.47) per annum for the other countries of the postal union. Subscriptions must be for the full year, and will commence from the first issue of each month.

**Clause 5.** The Supplement will be sold by sheets of 16 pages maximum. The price of each sheet is to be 5 centimes (1 cent) for the issues of each current year, and 50 centimes (10 cents) for those of previous years.

**Clause 6.** An annual alphabetical index of the Supplement will be published in the annual index of the Journal officiel; the price of the index will be 6 frs. (\$1.16).

**Clause 7.** The President of the Council, the Minister of the Interior, and the Minister of Finance are charged with the execution of the present decree, which is to be published in the Journal Officiel and in the list of Laws.

## **OFFICIAL QUOTATIONS OF FOREIGN GOVERNMENT SECURITIES ON THE PARIS BOURSE**

### **Details and Documents Required**

- (1) The demand for admission must be made to the Syndic des Agents de Change de Paris (Secretary of the Paris Stock Exchange).
- (2) Two copies must be delivered of the laws and decrees authorizing the loan issue.
- (3) A declaration must be made, in duplicate, by the consul in France of that foreign government, that the security is quoted officially on its own bourse, if one exists; if not, then a declaration in duplicate that there is no Bourse in that country.
- (4) Specimens in duplicate of the temporary or final bond certificates, with coupons, and the details of the numbers relating to the coupons of each class of certificate issued.
- (5) Statement of the price of issue.
- (6) Statements of the amounts paid up on each security.
- (7) Dates when interest payable.
- (8) Present position as to interest payment.
- (9) Names and addresses of the bankers in Paris who undertake the sale of the securities and the payment of the coupons.

### **Undertakings Required**

- (10) To furnish the Stock Exchange Committee with 200 copies of each list of drawings for the redemption of the securities.
- (11) Translations into French, by sworn translators, of all documents submitted in foreign languages (other than French).



## **RULES RESPECTING ADMISSION TO OFFICIAL QUOTATIONS OF FOREIGN SHARES AND BONDS ON THE PARIS BOURSE**

Formal application for inclusion in the Official List must be made to the Syndic des Agents de Change de Paris.

### **Details Required**

The following documents and information must be supplied in duplicate with the application:

- (1) Certified copies, in duplicate, of (a) all public and private agreements and deeds relating to the formation of the company (charters or articles of incorporation); (b) the by-laws of the company; (c) resolutions or other consent or permission authorizing the issue of such securities in the country in which it is registered; (d) translations into French, by sworn translators, of all documents submitted in other languages.
- (2) Duplicate certificate, by the Consul in France of the country in which the company has been registered, that the deeds and agreements produced are due legal form for that foreign country, and that the securities are quoted officially on the Stock Exchange in that country (or a certificate that there is no Stock Exchange in that country.)
- (3) Specimens of the temporary and final forms of certificates issued for the securities, with details of the coupons and of the numbers referring to each class of coupons.
- (4) Proof of the acceptance, by the French Department of Finance, of a French “représentant responsable” (agent) who is to be responsible to the Treasury for the stamp and other duties payable on the company’s securities issued in France.”
- (5) Statement of the price of issue;
- (6) Amounts paid up on each class of security;
- (7) Dates when dividends or interest are declared and paid;
- (8) Present position of the securities as regards dividends or interest;
- (9) Names and addresses of the Paris bankers who are issuing the certificates, and who will pay coupons and dividends declared on the securities held in France.
- (10) An undertaking by the company to provide for the registration of transfers and the payment of coupons in Paris, as well as for the repayment there of bonds to be redeemed by drawings or otherwise.
- (11) An undertaking to furnish the Paris Stock Exchange Committee with 200 copies of each list of drawings of securities for redemption.
- (12) An undertaking to furnish the Paris Stock Exchange Committee with a copy, in French, of the minutes of each general meeting of stockholders.

**Berlin** [Source: Greenwood, op. cit., pp. 891–896.]

### **German Stock Exchanges**

#### **Official Quotation of Shares and Bonds**

The conditions for the admission of shares and bonds to official quotation on the German Stock Exchanges are fixed by the law of the 22nd June 1896. The following are the chief provisions:

All requests for admission must be addressed to the Committee of the Stock Exchange, which thereupon publishes in the newspapers the prospectus of the company, and details



of the nominal values and descriptions of the securities for which the official quotation has been demanded, together with the name of the firm of stockbrokers making the demand.

At least six days must elapse between the date of such publication and the admission to quotation.

A prospectus of the company must be submitted, containing sufficient details to allow of a proper estimation of the value of the securities to be quoted. This applies also to increase of capital and to conversions. The prospectus must state the quantity of shares in circulation, and the quantity temporarily excluded from negotiation and the period of such exclusion.

For securities of German states or municipalities, or of undertakings under German government control, the prospectus is not generally required, as the official quotation cannot be refused.

Persons knowingly making false or misleading statements in any prospectus are jointly responsible, during five years afterwards, for damages to all German purchases of securities bought by reason of the publication of such prospectus.

The making of fraudulent statements in a prospectus or in advertisements, with a view to obtaining subscriptions for the purchase, or causing the sale of securities by the public is punishable by imprisonment and by a fine not exceeding 12,000 marks (\$3000).

Any agreement to evade or limit the responsibility for such statements is void in law.

### **Important**

A security cannot be admitted to official quotation by any German Stock Exchange if it has been previously submitted to another German Stock Exchange which has refused to quote it for any reason other than that of local interests.

In the case of public issues of shares for subscription, they cannot be officially quoted before allotment (allocation of them to subscribers).

The distribution of price-lists of shares not quoted officially is forbidden.

No official quotation can be granted to the shares or bonds of any business which has been converted into a stock corporation, as a going concern, until after the company has been registered at least one year, or until after its first annual balance sheet and profit and loss account, as a stock corporation, have been published.

### **Directors**

Directors must be appointed by the organization meeting (held to vote the incorporation of the company). They may be dismissed at any time by a general meeting. Managing directors may be appointed either by the articles of incorporation or by the Board of Directors (*die Direktion*); a list of directors and managers must be filed at the Commercial Court, and also any changes.

Restrictions by the company on the powers of directors cannot be pleaded against third parties. Directors must not compete with the company, nor undertake personal liabilities for any other company.

If the articles of incorporation provide for directors receiving any portion of the profits as remuneration, this payment may be reduced by a general meeting.

### **Committee of Inspection (Shareholders' auditors)**

This consists of three members. The first committee is elected by the organization meeting, and it remains in office until after the first annual general meeting. The same members cannot continue in office for more than four years. Any member may be dismissed by a three-fourths majority at any general meeting.

All appointments and changes must be registered at the Commercial Court.

The members of the committee must not be directors, nor employed by the company, but the committee may appoint one of its members to act temporarily for one of the directors prevented from attending to his duties. The duties of the inspectors are to continuously supervise the management of the company in all its details. They may at any time demand special reports on the business from the directors and may also examine all books and documents and check the cash balances, the securities of the company, and the stocks of goods on hand.

They must check the annual balance sheets and accounts and make reports on them, and on the management of the company, to the annual general meeting. They must also call general meetings whenever necessary in the interests of the company. The articles of incorporation of the company may impose further duties. The members of the inspection and audit committee are not allowed to delegate their duties.

The legal provisions concerning the supervision by stockholders' auditors are good, but in practice such supervision is generally worthless, many of the lay auditors being incompetent, and others only interested in drawing their fees.

### **Increase of Capital**

No increase of capital can be made unless the original share capital is fully subscribed and paid in, except for a very small amount of calls in arrears. Each class of stockholders must vote separately for the increase, by majorities of three-fourths in value of the stockholders present or represented by proxy. Original stockholders have the preference of subscribing for new issues, unless voted otherwise.

### **Reduction of Capital**

This may be voted at a general meeting by a three-fourths majority (in value) of the stockholders present or represented. Separate resolutions must be passed by each class of stockholders. The reductions may be for (1) writing off losses of capital; (2) repayment of share capital; or (3) canceling the unpaid portions of the par values of shares.

The reductions of capital must be advertised and notice given to each creditor, any of whom may thereupon demand guarantees for payment of their debts.

Shares may be repaid from profits, if power to do so is taken by the articles of incorporation; such repaid capital is not liable to be called up again.

### **Voluntary Liquidation**

When either the interim accounts or the final accounts of a company show a loss of half, at least, of the share capital of the company, the directors must immediately call a general meeting of shareholders to consider the position, but the dissolution is not compulsory; the meeting may resolve to continue trading.

A resolution for dissolution may be passed by a three-fourths majority in value of the stockholders present or represented at such a general meeting.



Unless otherwise provided by the articles of incorporation, or voted by the general meeting, the directors of the company act as liquidators (receivers).

The committee of inspection, or stockholders representing one-20th of the capital, may apply to the Court for the appointment of other liquidators. A general meeting may at any time dismiss any liquidator not appointed by the Court.

Liquidators are subject to the supervision of the committee of inspection. Balance sheets must be published annually during the liquidation (dissolution proceedings).

Stockholders representing a three-fourths majority of the value of the company may agree to the sale of the whole of the business for shares in another company.

### Transfers of shares

Transfers can be made by endorsement of the shares, and may be in blank, if the par value of the shares is over 1000 marks (\$250) each. Below that amount, they must be transferred by affidavit made before a judge or notary, and the transfer is also subject to the consent of the board of directors.

Transferors are liable for calls made during the two years following the transfer. Each transferor is liable in turn, moving backwards from the last holder. The transferor paying the calls in default (installments due on shares) is entitled to a share certificate, from the company, for such shares.

### Dividends

Before paying dividends, a reserve must be made of at least 5% of the net profits of each year, until such reserves amount to 10% of the total authorized capital of the corporation.

In the case of different classes of shares on which varied amounts have been paid up, there must be first paid, from the profits, interest at the rate of 4% per annum on the actual amounts paid up, reckoned from the dates of receipt, or such smaller interest as the profits will allow. Any excess profit may be paid as dividends.

Interest during construction (*Bauzinsen*) may be paid by railroads and other companies from the date of their incorporation until the commencement of business.

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## Differential levels of disclosure and the earnings–return association: evidence from foreign registrants in the United States<sup>☆</sup>

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### Abstract

Foreign companies listing on U.S. exchanges are required to report financial information under U.S. GAAP on form 20-F using either Item 17 or Item 18 disclosure rules. These two disclosure rules differ in that Item 17 allows many exemptions from U.S. GAAP, while Item 18 requires disclosure of all financial information in accordance with U.S. GAAP. This study examines the differential earnings–return association between Item 17 and Item 18 filers.

We find significantly higher earnings–return associations for Item 18 filers than for Item 17 filers. While the earnings–return association of Item 18 foreign firms is not different from that of matched U.S. firms (which fundamentally use Item 18 rules), the earnings–return association of Item 17 foreign firms is significantly lower than that of matched U.S. firms. Overall, the results are consistent with the idea that higher levels of disclosure may be related to lower discount rates and higher earnings response coefficients (ERCs).

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*Keywords:* Disclosure; Earnings response coefficient; Item 17 or Item 18 financial statement rules; SEC form 20-F

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## 1. Introduction

This study examines the relation between earnings and market returns under alternative disclosure options for foreign companies that trade stock in U.S. capital markets. Specifically, we compare the earnings–return association for foreign registrants using Item 18 reporting rules (i.e., a high level of disclosure) to those using Item 17 reporting rules (i.e., a low level of disclosure) on form 20-F. Our study is motivated by Frost and Kinney (1996), who found no difference in the earnings–return association between foreign registrants and U.S. firms even though the level of disclosure is different. Fields, Lys, and Vincent (2001) suggest that the results in Frost and Kinney “are consistent with many other unexamined hypotheses. Furthermore, the link between disclosures and the cost of capital is not developed.”

To help us hypothesize about the association between disclosure and the earnings–return relation, we rely on previously developed theory that suggests useful information obtained from additional disclosure reduces investors’ informational uncertainty, allowing investors to apply a lower discount rate, which then increases the earnings–return association. Although we do not directly examine the impact of company disclosure activities on discount rates, our results on the association between disclosure and the earnings–return relation suggest an inverse relation between disclosure activities and discount rates. While our findings are descriptive of the effects of disclosure in capital markets, they are particularly relevant for foreign corporations facing a unique set of disclosure choices as they enter U.S. capital markets and file with the U.S. Securities and Exchange Commission (SEC).<sup>1</sup>

The SEC regulates the use of Item 17 or 18 on form 20-F. Non-U.S. companies trading on a primary U.S. exchange must report financial information based on U.S. GAAP on form 20-F using either Item 17 or Item 18 disclosure rules. Item 17 allows many exemptions from U.S. GAAP, while Item 18 requires disclosure of all financial information in accordance with U.S. GAAP and Regulation S-X. Thus, the use of Item 17 or 18 rules can be viewed as two different levels of disclosure. Non-U.S. firms that seek to issue shares publicly in the United States must file financial statements under Item 18 in the registration statement. Non-U.S. firms that are not issuing shares but simply listing existing shares on a U.S. exchange can choose to file under Item 18 or the reduced disclosure requirements of Item 17 (U.S. Securities and Exchange Commission, 1993).

In practice, some foreign registrants voluntarily use Item 18, while many are required to do so because they are raising capital in the United States. This aspect of the registration process must be controlled since previous research (Frankel, McNichols, & Wilson, 1995) suggests a strong relation between the need for financing and the level of financial disclosure in capital markets. Our research design controls the effect of financing needs on the earnings–return association, which helps us isolate the effects of disclosure.

Other issues surrounding the use of Item 17 versus 18 reporting rules help to motivate our study. First, all U.S. registrants that compete with foreign registrants for investor’s capital

<sup>1</sup> The unique set of disclosure choices in question for foreign registrants are Item 17 or Item 18 financial statement rules for form 20-F. The choice of Item 17 financial statement rules is unavailable to U.S. domestic registrants.



must fully comply with U.S. GAAP regardless of whether they issue new securities or just list existing securities. In other words, there is no reduced disclosure alternative, such as Item 17, available to U.S. firms that seek to list securities only. This may create inequities in the cost of disclosure between U.S. and non-U.S. competitors because of the additional financial reporting burden for U.S. firms (Rader, 1994). Second, selection of Item 17 disclosure rules by foreign registrants may provide them with a strategic advantage by avoiding the disclosure of sensitive information. Third, the implied two-tier reporting framework (i.e., Item 17 or Item 18) available for foreign registrants also conflicts with the findings of the American Institute of Certified Public Accountants (1993), which states that users prefer one set of accounting standards for all foreign registrants listing securities in U.S. markets. Finally, concern exists over whether the additional disclosures for foreign firms entering U.S. capital markets to raise capital enhance an investor's ability to evaluate the registering firm's financial performance (Cochrane, 1994). Financial-statement users identify Item 18 disclosures as being especially useful (American Institute of Certified Public Accountants, 1993), yet the cost of complying with Item 18 requirements may be deterring foreign companies from raising capital in the United States (Mitto, 1992).

Our analysis compares the association between earnings and returns under different filing status and domicile location using three sets of matched subsamples: (i) Item 17-filing foreign firms and country-, industry-, and size-matched Item 18-filing foreign firms, (ii) Item 17-filing foreign firms and industry- and size-matched U.S. firms, and (iii) Item 18-filing foreign firms and industry- and size-matched U.S. firms. We use market data from U.S. capital markets only and accounting information available in the registrant's 20-F submission to the SEC. Our tests control for domicile location (country), industry, size, other determinants of the earnings response coefficient (ERC), and the need for raising capital in the United States, which therefore controls for the mandatory or voluntary use of Item 18 reporting rules.

After controlling for the need for financing and other ERC determinants, we find that the earnings–return association is higher for Item 18 foreign registrants than Item 17 foreign registrants. We also find that the earnings–return association for Item 18 foreign registrants does not differ from that of industry- and size-matched U.S. firms (which fundamentally report earnings using Item 18 financial statement rules), while the earnings–return association of Item 17 foreign firms is lower than that of matched U.S. firms. This lends further evidence to the proposition that the earnings–return association is higher for firms using Item 18 rules.

Our replication of Frost and Kinney's (1996) earnings–return correlation test is consistent with their result in that the earnings–return relation is independent of domicile location. However, when we examine the earnings–return relation across disclosure choice (i.e., Item 17 versus 18) using a multivariate analysis, we are able to show that the ERC is significantly related to disclosure choice. This is the primary contribution of our study, which implies that higher disclosure levels reduce the discount rate. In the next section, we discuss the institutional background related to 20-F filings and previous research in the area. In Section 3, we develop our hypotheses. Section 4 discusses our research design. In Section 5, we present our results, and Section 6 provides some concluding remarks.

## **2. Background**

### *2.1. Item 17 versus Item 18 disclosures*

Non-U.S. firms that are publicly offering new securities on U.S. exchanges must make Item 18 disclosures. However, non-U.S. firms that are simply listing securities have the option of using either Item 17 or Item 18 disclosure rules. One popular explanation for the selection of Item 17 over Item 18 rules by foreign registrants who do not issue stock is that Item 18 disclosures divulge sensitive and competitive information (Biddle & Saudagaran, 1989). This is likely to be the case since the primary reporting difference between Items 17 and 18 is that Item 18 requires vastly expanded footnote disclosures on industry segments, disclosures of related party transactions, contractual terms with significant suppliers, deferred taxes, loss contingencies, competitors, negative trends and risk factors for the security issue, financial statements of acquired businesses, nonconsolidated subsidiaries, or investees carried on the equity method (Decker, 1994; Rader, 1994). Footnote disclosures under Item 17 are generally limited to those required by home country GAAP, which is typically less stringent than footnote disclosures required under U.S. GAAP. Because of the expanded disclosure requirement under Item 18 versus Item 17, we characterize firms choosing Item 18 or 17 disclosures as high or low disclosure firms, respectively.

### *2.2. Prior research*

Previous studies about form 20-F disclosures typically focus on the reconciliation from domestic- to U.S.-GAAP-based accounting figures (Amir, Harris, & Venuti, 1993; Bandyopadhyay, Hanna, & Richardson, 1994; Barth and Clinch, 1996; Chan and Seow, 1996; Godwin, Goldberg, & Douthett, 1998). These studies compare the value-relevance of U.S. GAAP to domestic-GAAP disclosures and provide mixed results. Although we do not examine earnings reconciliation components, we extend research on form 20-F disclosures by considering differences in the usefulness of aggregate earnings under different levels of disclosures dictated by Items 17 and 18 reporting rules.

The Frost and Kinney (1996) study is particularly relevant for our study. They find Item 18 requirements to be a more costly and higher disclosure requirement than Item 17, and that the correlations between earnings and returns for Item 17 foreign issuers are not statistically different from those for U.S. comparison firms. The latter finding suggests that foreign issuers' choices on disclosure levels are not associated with the usefulness of their earnings in equity valuation. This result seems inconsistent with previous research in U.S. markets that finds higher earnings–return correlations are associated with firms that disclose more information (Imhoff, 1992).

To address this unexpected result by Frost and Kinney, we make several improvements to the research design. First, our sample is richer than the one used in Frost and Kinney in that it includes more observations from a greater number of countries. Second, and more importantly, we compare the earnings–return relation of Item 17 foreign registrants to Item 18 foreign registrants by country using a multivariate model. Finally, Frost and Kinney control



for industry and size through matching, but do not control for the need for financing in the United States, other determinants of the earnings–return relation, and domicile when testing for differences across filing status (Item 17 or 18). The use of a multivariate model to control for all of these factors at once helps to ensure that the results and inferences about the earnings–return association can, in fact, be attributed to increased disclosure.<sup>2</sup>

Previous research by Collins and Kothari (1989) shows that the earnings–return association is a function of the risk, growth, and persistence of earnings. Collins and Kothari (1989) also suggest that ignoring the sources of cross-sectional and temporal variation in the earnings–return relation can result in statistically less-precise parameter estimates and downward biased test statistics on the response coefficients. This is another possible explanation for why Frost and Kinney (1996) did not find significant differences in the earnings–return correlations. We control for ERC determinants by including proxies for firm risk, growth opportunities, and earnings persistence in addition to the need for raising capital in the United States.

### 3. Hypotheses

We approach the research issue in a fashion analogous to Abdel-khalik, Rashad, Wong, and Wu (1999). We argue that the alternative disclosure rules, Item 17 versus Item 18, give rise to two information environments from the perspective of a U.S. investor. The Item 18 information environment is rich and more structured because the registrant has to fully comply with U.S. GAAP. The Item 17 information environment is relatively poor and less structured due to the reduced disclosure requirements.

The richer information environment under Item 18 ultimately reduces the information risk about the firm's cash flow prospects. Information risk is a component of the firm's expected discount rate, and as Collins and Kothari (1989) show, the ERC is negatively related to the discount rate.<sup>3</sup> When traditional risk proxies, such as systematic risk, fail to capture the whole spectrum of discount factors, other information risk variables, such as our disclosure-indicator variable, serve as an additional discount factor affecting the ERC (Dhaliwal and Reynolds, 1994). Our first hypothesis stated in alternative form is as follows:

**H1:** The earnings–return association is higher for foreign registrants filing under Item 18 disclosure requirements than foreign registrants filing under Item 17 disclosure requirements.

An additional issue relates to differential ERCs between U.S. firms and foreign registrants. Since there is no reduced disclosure alternative for U.S. firms, we expect to find a difference

<sup>2</sup> We replicated Frost and Kinney's correlation tests with our sample and got similar results. The returns–earnings correlations between Item 17 registrants and U.S. matches, or between Item 18 registrants and U.S. matches, are not significantly different using Fisher's Z test.

<sup>3</sup> An alternative argument is one advanced by Lundholm and Myers (2002), which suggests that more informative disclosures result in current returns reflecting more future earnings news.



in the earnings–return association between U.S. firms and Item 17 foreign registrants. Our second alternative hypothesis is:

**H2:** The earnings–return association is higher for U.S. firms than foreign registrants filing under Item 17 disclosure requirements.

In addition, we expect to find no difference in the earnings–return associations between Item 18 foreign registrants and U.S. firms since U.S. firms are always required to file under Item 18 rules. However, Frost and Kinney (1996) show that noncompliance and SEC-approved disclosure relief is significant for Item 18 foreign registrants. If noncompliance and disclosure relief reduces the information environment for these firms, then it is conceivable that the earnings–return association for U.S. firms is higher than the earnings–return association for Item 18 foreign registrants (assuming U.S. firms fully comply and do not receive SEC-approved disclosure relief).<sup>4</sup> Thus, our third hypothesis stated in alternative form is as follows:

**H3:** The earnings–return association for U.S. firms is higher than or equal to the earnings–return association for foreign registrants filing under Item 18 disclosure requirements.

## 4. Research design

### 4.1. Sample

To obtain our sample, we first identified foreign registrants filing form 20-F from 1991 to 1996 on the Disclosure database. We then examined the 20-F forms to determine each registrant's use of Item 17 or 18 financial statement rules. The initial search resulted in 140 firms (504 firm-years) using Item 17 and 330 firms (1018 firm-years) using Item 18 disclosures. We then obtained annual stock returns and financial variables from Compustat, giving us a data set on 83 foreign issuers (299 firm-years) for Item 17 and 261 foreign issuers (966 firm-years) for Item 18. All financial variables used in the study are based on U.S. GAAP.

Within this initial sample, we develop three sets of matched pairs for Items 17 and 18 foreign firms separately, using country, industry (based on four-digit SIC code), year, and size (assets) as the basis for matching.<sup>5</sup> First, we matched U.S. firms to Items 17 and 18 foreign

<sup>4</sup> Even though Frost and Kinney (1996) show a significant rate of noncompliance with reporting rules by foreign registrants (e.g., 12% noncompliance with segment reporting rules), the majority do comply. Noncompliance by Item 18 registrants would bias our results against finding a significant difference between Item 18 and Item 17. Additionally, in response to one of the referee's inquiries, we tested differences between Items 18 and 17 footnote disclosures by examining Compustat footnote indicators for industrial and geographic segment disclosures. This comparison indicates that Item 18 registrants are making the incremental disclosures that Item 17 registrants are not required to make.

<sup>5</sup> All but 5 firm-years in our sample are matched by four-digit SIC codes.

registrants on the basis of industry, year, and size to assess the difference in the earnings–return association between U.S. and foreign domicile locations. Matching by industry controls for cross-sectional variation in ERCs attributable to industry membership. Matching by firm size controls for differences in firm size-related information environments. This process reduced our final sample size to 45 foreign firms (175 firm-years) for Item 17 and 166 foreign firms (536 firm-years) for Item 18.<sup>6</sup>

Next, we matched Item 18 foreign registrants to Item 17 foreign registrants by country, industry, size, and reporting year to assess differences in the earnings–return association between filing status. Matching by country controls for different customs, laws, regulations, and other factors related to being domiciled outside the United States and matching on the basis of firm-year controls for overall market effects. This choice of a control sample assumes that large market movements will affect the experimental and comparison groups in a similar manner since all return observations are taken from U.S. markets. The resulting set consists of 73 matched pairs of firm-years for Items 17 and 18 firms for a total of 146 firm-year observations. In summary, we develop three sets of matched pairs: (1) Items 17 and 18 foreign registrants only, (2) Item 17 foreign firms and U.S. matched firms, and (3) Item 18 foreign firms and U.S. matched firms.

Table 1 shows distribution of sample by country, filing status, and industry (economic sector as defined by Compustat). Since Items 17 and 18 subsamples consist of 12 and 30 different countries, respectively, we provide descriptive statistics by major countries and groupings by major geographical areas. Panel A of Table 1 indicates that Item 18 is more frequently used than Item 17 by foreign firms. With the exception of Canada, 86% of our sample firms used Item 18 disclosures. Canadian firms, which represent about half of our Item 17 subsample, filed under the Item 17 rules 67% of the time. A comparison of mean and median values of revenues indicates that, in general, smaller firms use Item 17. Panel B shows that our sample firms are dispersed across many industries.

#### 4.2. Variables

Our basic test examines the association between annual stock returns (including dividends) and changes in annual accounting earnings. Following Collins and Kothari (1989), our multivariate model includes variables to control factors that determine ERCs, namely growth potential, earnings persistence, and risk. Growth potential is proxied by the market-to-book ratio. The ERC is expected to have a positive association with growth potential. Following Warfield, Wild, and Wild (1995) and Douthett and Jung (2001), we use the first-order autocorrelation coefficient [AR(1)] on 10 years of annual earnings as the proxy for earnings persistence. Since not all firms in our sample had 10 years of reported earnings, we accepted a minimum of 5 years of earnings history to calculate the variable.

<sup>6</sup> Since our proxy for earnings persistence is first-order autocorrelation [AR(1)] coefficient calculated based on 10 years of annual earnings (minimum of 5 years), we lost firms that had short operating histories. These firms were relatively small in terms of revenues.



Table 1

Distribution of sample of foreign firms listed under Item 17 and Item 18 on form 20-F

Panel A: Number of firms, firm-years, and revenues by country and filing status

Country	Item 17 foreign registrants				Item 18 foreign registrants			
	Number of firms	Number of firm-years	Revenue <sup>a</sup>		Number of firms	Number of firm-years	Revenue <sup>a</sup>	
			Mean	Median			Mean	Median
Australia	2	4	2.0	0	6	25	5765.8	4863.8
Canada	26	89	51.1	17.6	15	44	60.2	58.1
Israel	1	4	11.1	9.1	23	94	122.6	97.1
Japan	6	28	14,614.7	9810.0	4	17	21,641.1	14,189.5
Mexico	1	4	279.2	268.7	9	23	2001.3	969.1
Netherlands	1	6	1635.2	1501.6	10	25	9005.5	9863.5
United Kingdom	2	10	3159.9	2752.9	31	122	6162.1	3617.0
Other Americas	2	6	708.2	700.4	23	47	1099.8	303.7
Other Europe	4	24	18,912.3	17,421.7	32	108	11,689.0	10,010.4
Other Asia Pacific	0	0	0	0	13	31	2159.0	964.1
All foreign	45	175	5225.6	52.2	166	536	5275.2	1401.6
Matched U.S.	45	175	4308.9	196.4	166	536	4492.0	1058.5

Panel B: Firm-year observations by economic sector and filing status<sup>b</sup>

Economic sector	Item 17 foreign registrants	Item 18 foreign registrants
Basic materials	37	72
Consumer goods	42	138
Health care	6	57
Energy	22	32
Financial services	6	14
Capital goods	28	56
Technology	31	86
Communications	2	36
Utilities and transportation	1	45
Total	175	536

<sup>a</sup> In US\$ millions.<sup>b</sup> Economic sector as defined by Compustat.

The mean (median) number of years used to calculate AR(1) coefficients is 8.6 (10). Risk is proxied using the ratio of debt to shareholder's equity (Frankel, Johnson, & Skinner, 1999).<sup>7</sup>

As mentioned previously, foreign registrants are required to use Item 18 rules when they issue new securities in U.S. capital markets. If the registrant is not issuing new securities, but simply listing on an exchange, they have the option of choosing Item 18 or

<sup>7</sup> We attempted to use systematic risk from the market model as a proxy for risk but lost too many observations in the Item 17 to Item 18 analysis. Requiring a minimum of 40 months of returns in U.S. capital markets (maximum of 60 months) for the estimation period left us with only 30 pairs of firm-year observations.



Item 17. Thus, one key difference between Item 18 and Item 17 firms is that the use of Item 18 may be mandated by the issuance of new stock, while the use of Item 17 is never associated with the issuance of new stock. To control for such differences, we include an indicator variable for whether the firm is raising capital in the United States (RAISE).

We use three alternative measures for RAISE to control for the disclosure effects of current or anticipated financing. We first define RAISE as equal to 1 if the foreign or U.S. firm issued stock on U.S. exchanges during the current fiscal year and 0 otherwise. However, we observe that no foreign registrants in our sample changed their filing status from Item 18 to Item 17 during the sample period, which is consistent with our discussion with a staff representative of the U.S. SEC that a foreign registrant cannot switch back to Item 17 reporting rules after they have issued stock and used Item 18. This means that the foreign registrant has to use Item 18 in years subsequent to the new stock issue even though they may not be issuing stock in U.S. capital markets again. This leads us to a second measure, where we define RAISE equal to 1 if the firm issued stock on U.S. markets in any of the sample years prior to the current fiscal year and 0 otherwise. Lastly, we define RAISE equal to 1 if the firm issued new stock on U.S. markets in any of the sample years from 1991 to 1996 and 0 otherwise. This most inclusive definition on capital-raising activities accounts for the possibility that some foreign firms will choose Item 18 when they plan to issue securities in the near future even though they did not raise capital in the current year. Including RAISE as a control variable helps to ensure that our results are related to increased levels of disclosure and not driven by the need for financing.

For the Item 17 versus Item 18 subsample, the RAISE variable is based on whether the firm filed an S-1, S-2, or S-3 (or an F-1, F-2, or F-3) registrant statement. S- and F-type registration statements are required of any domestic or foreign firm that issues new securities on a U.S. stock exchange. Of the 73 matched pairs, 52 firm-years of the Item 18 partition were associated with an S-type registration statement, indicating that the firm raised capital in the United States that year. The remaining 21 Item 18 firm-year observations were not associated with an S-type registration. As expected, none of the 73 firm-year observations in the Item 17 partition were associated with an S-type registration statement and therefore did not raise capital on a U.S. stock exchange that year. We also used Compustat data item 108 (sale of common and preferred stock) as a proxy for raising capital. The regression results were qualitatively the same regardless of whether RAISE was based on evidence of an S-type registration submission or Compustat data item 108. For the remaining two subsamples (Item 17 matched to U.S. and Item 18 matched to U.S.), RAISE is based on Compustat data item 108 due to the additional work involved with collecting the S-1 information.

#### 4.3. Regression model

While Collins and Kothari (1989) used a reverse regression to control for measurement errors in the earnings variable, Cready, Hurtt, and Seida (2000) document statistical problems

for interactive reverse regression models. Therefore, we use an ERC regression model similar to Cready et al. for hypothesis testing. The variable of interest, an indicator for Item 17 versus Item 18, or foreign versus U.S. location of domicile, is interacted with the earnings-change variable to assess differential ERCs. Additionally, all control variables are interacted with earnings changes to control for other determinants of the ERC. The specific model used for regression testing is as follows:

$$\begin{aligned} \text{RETURN} = & \alpha_0 + \alpha_1 \Delta \text{EARN} + \alpha_{2i} \Delta \text{EARN} \times D_i + \alpha_3 \Delta \text{EARN} \times \text{RAISE} + \alpha_4 \Delta \text{EARN} \\ & \times \text{MKBK} + \alpha_5 \Delta \text{EARN} \times \text{PERS} + \alpha_6 \Delta \text{EARN} \times \text{TDSE} + \varepsilon \end{aligned}$$

where RETURN=cumulative 12-month returns on a common share in U.S. dollars (including dividends) beginning 3 months after the fiscal year-end  $t-1$ ;  $\Delta \text{EARN}$ =the change in reported fiscal year primary earnings per share in U.S. dollars at time  $t$  ( $\text{EARN}_t - \text{EARN}_{t-1}$ ) divided by the market price at the end of year  $t-1$ ;  $D_i$ =an indicator variable that equals 1 for Item 18 and 0 for Item 17 for hypothesis 1 ( $i=1$ ), and 1 for U.S. firms and 0 for foreign registrants for hypothesis 2 ( $i=2$ ) and hypothesis 3 ( $i=3$ ); RAISE=an indicator variable that equals 1 if the firm issued stock in the current fiscal year and 0 otherwise;<sup>8</sup> MKBK=market value of equity divided by book value of equity at the end of year  $t-1$ ;<sup>9</sup> PERS=AR(1) coefficients on annual earnings as the proxy for earnings persistence;<sup>10</sup> TDSE=total debt divided by total shareholders equity at the end of year  $t-1$ ;  $\Delta \text{EARN} \times D_i$ ,  $\Delta \text{EARN} \times \text{RAISE}$ ,  $\Delta \text{EARN} \times \text{MKBK}$ ,  $\Delta \text{EARN} \times \text{PERS}$ , and  $\Delta \text{EARN} \times \text{TDSE}$ =interaction terms of the variables listed above;  $\varepsilon$ =i.i.d. random error term.

Note that  $\alpha_{2i}$  is the coefficient on the earnings–dummy interaction term which takes the value of 0 or 1 for the Item 17 to Item 18 comparison ( $i=1$ ), Item 17 to U.S. comparison ( $i=2$ ), or the Item 18 to U.S. comparison ( $i=3$ ), respectively. We expect  $\alpha_{21}$  to be positive and statistically significant if earnings reported under Item 18 contain less informational uncertainty than earnings reported under Item 17. In comparing Item 17 registrants to U.S. registrants, we expect  $\alpha_{22}$  to also be positive and significant since U.S. registrants fundamentally use Item 18 rules (note that the indicator variable is assigned a value of one for U.S. registrants). Lastly, we expect  $\alpha_{23}$  to be insignificant (or positive and significant) when Item 18 registrants are compared to U.S. registrants. The coefficients on all control variables are expected to be positive, with the exception of  $\alpha_6$ . As the coefficient on the earnings–risk interaction term,  $\alpha_6$  is expected to be negative, reflecting the argument that risk reduces the ERC.

<sup>8</sup> Test results were insensitive to two other definitions of RAISE.

<sup>9</sup> We also measured MKBK and TDSE at time  $t$ , and the regression results were not qualitatively different from those reported.

<sup>10</sup> We also used extreme versus moderate measures of E/P ratio to proxy for persistence (Ali & Zarowin, 1992) and obtained similar results.



## 5. Results

### 5.1. Descriptive statistics

Table 2 describes financial characteristics for Item 18 and Item 17 foreign registrants and industry- and size-matched U.S. firms.<sup>11</sup> The comparison of foreign firms between Item 18 (Panel B) and Item 17 (Panel A) indicates that Item 18 filers are better performers in capital markets (16.8% vs. 5.4% mean returns for Item 18 versus Item 17, respectively) and larger in size by any measure, including sales, assets, or market value. Item 18 filers have somewhat different earnings persistence and debt-to-shareholders equity ratios. Overall, these comparisons suggest that Item 18 filers are different from Item 17 filers in the factors that affect earnings–response coefficients, and therefore, these factors should be controlled in the regression analysis.

Panels A and B of Table 2 also compare financial characteristics of Items 17 and 18 foreign firms with those of matched U.S. firms. As shown in Panel A, there are statically significant differences between Item 17 firms and their matched U.S. counterparts. U.S. firms have higher market returns (RETURN), larger increase in earnings ( $\Delta$ EARN), and higher market-to-book ratios. Earnings persistence (PERS) is lower for matched U.S. firms using medians but not means. As shown in panel B, differences between Item 18 firms and U.S. matched firms are statistically significant for most variables based on comparisons in means, medians, or both. Notably, U.S. firms have higher market returns (RETURN), larger increases in year-to-year earnings ( $\Delta$ EARN), and higher market-to-book ratios (MKBK). None of our sample firms have negative book value of equity.

The size matching of U.S. companies to Item 17 registrants appears to be effective since only one of three size measures, ASSETS, is statistically different (the mean comparison of assets is different; however, the median comparison is not). SALES and MKTVAL, as alternative measures of size, are not statistically different based on means or medians. The size matching of U.S. firms with Item 18 registrants does not appear to be as effective. All three measures of size, ASSETS, SALES, or MKTVAL, are statistically different using either means or medians for a basis for comparison. To address the possibility that size matching is not an effective control in this subsample, we ran the regression tests with a control variable for firm size. The results were not qualitatively different from the final results.

### 5.2. Regression results for Item 17 foreign registrants versus Item 18 foreign registrants

Table 3 shows multivariate test results for hypotheses 1–3. The results reported in column (3) of Table 3 relate to hypothesis 1 and compare the size of Item 17 ERCs to Item 18 ERCs by using an interaction term in the regression analysis. The estimate for  $\alpha_1$ , the coefficient on

<sup>11</sup> The descriptive statistics in Table 2 for Item 17 registrants apply only to the matched pairs of Item 17 firms to U.S. firms. The descriptive statistics for the matched pairs of Item 17 to Item 18 registrants are similar to the descriptive statistics for the matched pairs of Item 17 registrants to U.S. firms and therefore are not presented.



Table 2  
Descriptive statistics of foreign firms by filing status

Descriptive statistics of foreign firms by filing status				Panel B: Item 18 foreign firms vs. U.S. matched firms		
Panel A: Item 17 foreign firms vs. U.S. matched firms						
(1) Variable	(2) Item 17 foreign registrants; mean (median) [n = 175]	(3) U.S. sample matched with Item 17 foreign registrants; mean (median) [n = 175]	(4) <i>t</i> Test for difference in means, Wilcoxon test for difference in medians <sup>a</sup> (2)–(3)	(5) Item 18 foreign registrants; mean (median) [n = 536]	(6) U.S. sample matched with Item 18 foreign firms; mean (median) [n = 536]	(7) <i>t</i> Test for difference in means, Wilcoxon test for difference in medians <sup>a</sup> (5)–(6)
RETURN	0.054 (0.035)	0.148 (0.138)	– 2.41 ** (– 2.40 **)	0.168 (0.113)	0.269 (0.159)	– 2.92*** (– 2.81***)
ΔEARN	– 0.001 (– 0.001)	0.015 (0.008)	– 1.75 * (– 2.65***)	– 0.002 (0.006)	0.009 (0.007)	– 1.17 (– 1.56)
MKBK	2.960 (1.884)	4.861 (2.318)	– 1.90 * (– 1.48)	2.816 (2.023)	3.432 (2.427)	– 1.89 * (– 5.05***)
PERS	0.347 (0.427)	0.270 (0.252)	1.32 (2.87***)	0.409 (0.342)	0.465 (0.397)	– 1.41 (– 1.45)
TDSE	1.301 (0.859)	1.224 (0.858)	0.60 (0.25)	1.202 (1.141)	1.748 (1.129)	– 2.31 * * (0.32)
ASSETS	4764.144 (503.079)	2877.513 (164.085)	2.40 ** (1.14)	8198.999 (2730.737)	5212.334 (1197.280)	3.72*** (4.29***)
SALES	5225.639 (52.171)	4308.944 (196.419)	1.42 (– 1.23)	5275.209 (1401.617)	4492.008 (1058.500)	1.78 * (2.04 **)
MKTVAL	3313.975 (477.477)	4594.937 (191.309)	– 1.15 (1.16)	6247.732 (2939.042)	6380.880 (1375.640)	– 0.15 (3.42***)

Variable definitions: RETURN = cumulative 12-month return on a common share in U.S. dollars (including dividends) beginning 3 months after the fiscal year-end *t* – 1. ΔEARN = the change in reported fiscal year primary earnings per share in U.S. dollars at time *t*, that is, EARN at *t* minus EARN at *t* – 1, divided by market price at the end of the year. MKBK = the market value of equity divided by the book value of equity at the end of year *t* – 1. PERS = annual persistence in earnings. Following Warfield et al. (1995) and Douthett and Jung (2001), we measure PERS by the first-order autocorrelation in annual earnings for 10 fiscal years. TDSE = total debt divided by total shareholders equity at the end of year *t* – 1. ASSETS = total assets at the end of year *t* – 1. SALES = total revenue during year *t*. MKTVAL = market value of equity at the end of year *t* – 1.

<sup>a</sup> The Wilcoxon test statistic indicates that the median rank-sums are statistically different.

\* Significant at the 10% level (two-tailed).

\*\* Significant at the 5% level (two-tailed).

\*\*\* Significant at the 1% level (two-tailed).

Table 3

Regression results comparing earnings response coefficients between foreign firms filing under Item 17 disclosure rules, Item 18 disclosure rules, and matched U.S. firms

(1) Variable	(2) Expected sign on parameter	Estimated parameters ( <i>t</i> statistic)		
		(3) Item 17 firms matched to Item 18 firms	(4) Item 17 firms matched to U.S. firms	(5) Item 18 firms matched to U.S. firms
Intercept	$\pm \alpha_0$	0.111 (1.78) *	0.113 (4.36) **	0.230 (13.28) ***
$\Delta\text{EARN}$	$+\alpha_1$	2.107 (2.12) **	0.047 (0.12)	1.013 (2.20) **
$\Delta\text{EARN} \times D_1$ ( $D_1=0$ for Item 17, $D_1=1$ for Item 18)	$+\alpha_{21}$	3.266 (1.99) **		
$\Delta\text{EARN} \times D_2$ ( $D_2=0$ for Item 17, $D_2=1$ for U.S. firm)	$+\alpha_{22}$		0.639 (1.70) *	
$\Delta\text{EARN} \times D_3$ ( $D_3=0$ for Item 18, $D_3=1$ for U.S. firm)	$+\alpha_{23}$			-0.434 (-0.93)
$\Delta\text{EARN} \times \text{RAISE}$	$+\alpha_3$	3.533 (1.92) *	0.797 (2.07) **	0.736 (1.78) *
$\Delta\text{EARN} \times \text{MKBK}$	$+\alpha_4$	0.227 (3.29) ***	0.055 (1.74) *	0.125 (4.11) ***
$\Delta\text{EARN} \times \text{PERS}$	$+\alpha_5$	-1.711 (-1.29)	0.676 (1.50)	1.881 (2.91) ***
$\Delta\text{EARN} \times \text{TDSE}$	$-\alpha_6$	-0.799 (-2.29) **	-0.128 (-0.99)	-0.119 (-4.08) **
Adjusted $R^2$		.451	.050	.081
<i>F</i> value		18.04 ***	3.62 ***	14.53 ***
Number of observations		146 (73 pairs)	350 (175 pairs)	1072 (536 pairs)

Model:  $\text{RETURN} = \alpha_0 + \alpha_1 \Delta\text{EARN} + \alpha_{2i} \Delta\text{EARN} \times D_i + \alpha_3 \Delta\text{EARN} \times \text{RAISE} + \alpha_4 \Delta\text{EARN} \times \text{MKBK} + \alpha_5 \Delta\text{EARN} \times \text{PERS} + \alpha_6 \Delta\text{EARN} \times \text{TDSE} + \varepsilon$ .

Variables definitions:  $D$  = an indicator variable that equals 1 for Item 18 disclosure and 0 for Item 17 disclosure for  $H_1$  (or one for matched U.S. firms and zero for foreign registrants for  $H_2$  and  $H_3$ ).  $\Delta\text{EARN} \times D$  = an interaction variable between  $\Delta\text{EARN}$  and  $D$ .  $\text{RAISE}$  = an indicator variable that equals 1 if the firm issued stock in the current fiscal year and 0 otherwise.  $\Delta\text{EARN} \times \text{RAISE}$  = an interaction variable between  $\Delta\text{EARN}$  and  $\text{RAISE}$ . All other variables are defined in Table 2.

\* Significant at 10% (two-tailed).

\*\* Significant at 5% (two-tailed).

\*\*\* Significant at 1% (two-tailed).

$\Delta\text{EARN}$ , is positive and significant at the 5% level (two-tailed). The estimate for  $\alpha_{21}$ , the coefficient on the interaction term  $\Delta\text{EARN} \times D_1$ , is positive and significant at the 5% level (two-tailed), supporting our first hypothesis that ERCs for Item 18 registrants are significantly higher than ERCs for Item 17 registrants.<sup>12</sup>

The estimated coefficient for  $\alpha_3$ , the interaction term  $\Delta\text{EARN} \times \text{RAISE}$ , is also positive and significant at the 10% level. When we run the regression with  $\Delta\text{EARN} \times \text{RAISE}$  omitted, the *t* statistic for the coefficient on  $\Delta\text{EARN} \times D_1$  increases from 1.99 to 4.15. This suggests

<sup>12</sup> We also included  $D_i$  as an independent variable in addition to the interaction term  $\Delta\text{EARN} \times D_i$ , and the results do not change.



that the effect of disclosure will be overstated if we fail to control for the effect of raising capital, a correlated omitted variable. Estimated coefficients for other control variables are significant at the conventional levels in the expected direction, with the exception of the estimate for the interaction of earnings changes and earnings persistence ( $\alpha_5$ ). An adjusted  $R^2$  of 45.1% indicates that the regression model has a relatively high degree of explanatory power compared to previous studies. Overall, our results suggest that ERCs for Item 18 disclosure are significantly higher than ERCs for Item 17 disclosure after controlling for other ERC determinants and the need for raising capital in the United States.

We performed additional tests to verify the robustness of the results. Since our sample contains multiple-year observations per firm, which may not be independent, our regression results may be subject to the usual serial correlation problem of understating the standard error and overstating the significance level. In the subsample that matches Item 17 to Item 18 registrants, we have an average of 2.65 firm-year observations per firm (median of 2 firm-years). We perform a Durbin–Watson test to check the existence of autocorrelation. The Durbin–Watson statistic is 2.14, indicating that a null hypothesis of no autocorrelation cannot be rejected at the 5% significance level.<sup>13</sup> We also ran the regressions using Newey and West's (1987) autocorrelation-consistent covariance matrix, using the means of multiple-year variables, and limiting the number of observations per firm to one (randomly chosen from different years). The results from these three regression sensitivities are not qualitatively different from those reported in Table 3. When we run the regressions by year for the Items 17 to 18 comparison, the experimental variables are only significant in two of six regressions (note that we have 6 years of data). The lack of significance in the other four regressions is probably attributable to low statistical power since the number of observations in these four regressions ranges from 14 to 27. Overall, the statistical evidence suggests that autocorrelation does not inflate the significance of our results.

We examine how sensitive the results are to changes in the return window. Frost and Kinney (1996) report that foreign issuers file annual and interim reports with longer lags, and file interim reports less frequently than do U.S. firms.<sup>14</sup> They report that Item 17 firms file annual financial statements and make disclosures to the media 12.9 and 6.2 days later than Item 18 filers, respectively. This suggests that less information is available on a timely basis for the Item 17 filers, which may affect the return–earnings association. Frost and Kinney also report that the mean lag for media disclosures (financial statements) is 72.3 and 78.5 days (160.6 and 173.5 days) from year-end for Items 17 and 18 disclosures, respectively. Our return window, a 12-month window starting 3 months after year-end, captures the mean lags for disclosures to the media but not the mean lag for financial statement disclosures submitted with the 20-F filing. We find that the results are qualitatively similar when we use a 15-month return window starting 3 months after year-end.<sup>15</sup>

<sup>13</sup> Durbin–Watson statistics for all three regressions range from 1.75 to 2.14, which do not reject the null hypothesis of no autocorrelation at 5% significance levels for their respective subsamples.

<sup>14</sup> Our data set does not contain information on filing and reporting lags, which is why we rely on Frost and Kinney's (1996) descriptive statistics.

<sup>15</sup> However, the results for the Item 17 to Item 18 comparison are qualitatively different if we use a 12-month return window starting 6 months after year-end. The  $t$  statistics on the experimental variables are not significant.



Even though we match pairs by country, approximately 34% of the Item 17 registrants in the Items 17 to 18 subsample are from Canada. To see if the Canadian group influences the results, we performed regression tests separately on Canadian and non-Canadian observations (results are not reported). The adjusted  $R^2$  are 72.6% and 18.8%, and the regressions on both partitions are significant with  $F$  statistics of 13.3 and 2.8 for the Canadian and non-Canadian groups, respectively. This indicates that overall explanatory power is derived from both partitions. The estimated coefficient for  $\alpha_{21}$  in the non-Canadian partition is positive and significant at less than 5%, while the estimate for  $\alpha_{21}$  in the Canadian partition is positive and marginally significant at the 10% level.

### 5.3. Regression results for foreign registrants versus U.S. matched firms

Test results comparing Item 17 ERCs to matched U.S. ERCs for hypothesis 2 are presented in column (4) of Table 3. The estimate for  $\alpha_{22}$ , the coefficient on the interaction term  $\Delta\text{EARN} \times D_2$ , is positive and significant at the 10% level (two-tailed) supporting our second hypothesis that ERCs for U.S. matched firms are higher than ERCs for Item 17 foreign registrants. The estimate for  $\alpha_3$ , the coefficient on the interaction term  $\Delta\text{EARN} \times \text{RAISE}$ , is also positive and significant at the 5% level. Since U.S. firms fundamentally use Item 18 rules, this is consistent with our overall proposition that higher earnings–return correlations are associated with higher levels of disclosure. Excluding the matched pairs of Canadian registrants does not qualitatively change the overall results. The estimated coefficients for other ERC determinant variables have signs consistent with predictions, and the coefficient for MKBK is statistically significant.

Column (5) of Table 3 presents the regression results for the comparison of Item 18 ERCs to matched U.S. ERCs (hypothesis 3). The estimate for  $\alpha_{23}$ , the coefficient on the interaction term  $\Delta\text{EARN} \times D_3$ , is insignificant at conventional levels, which is consistent with our third hypothesis predicting U.S. ERCs to be equal to Item 18 registrants ERCs. The estimate for  $\alpha_3$ , the coefficient on  $\Delta\text{EARN} \times \text{RAISE}$ , is positive and significant at the 10% level. The estimated coefficients for other ERC determinant variables are statistically significant with the expected signs.

## 6. Summary and concluding remarks

Using multivariate analysis and a matched sample design, this study examines whether the market returns are differentially associated with earnings information of foreign registrants under the alternative reporting rules required by Item 17 and Item 18 on form 20-F. The overall results indicate that the earnings–return association for Item 18 filers is significantly higher than for country-, industry-, and size-matched Item 17 filers, after controlling for the need for raising capital in the United States and other ERC determinant variables.

The majority of our results are consistent with the argument that a higher level of disclosure is associated with a lower discount rate due to the reduced level of informational uncertainty and a larger earnings–response coefficient. This suggests that the additional disclosures mandated by the SEC in Item 18 filings may enhance the associated usefulness of reported earnings. For the same reason mentioned above, we find lower ERCs for Item 17 foreign registrants compared to industry- and size-matched U.S. firms and similar ERCs for Item 18 foreign registrants compared to industry- and size-matched U.S. firms. We contribute to the literature by identifying a unique setting of differential disclosure levels and find that the earnings–return association is positively related to the level of disclosure after controlling the need for financing and other determinants of earnings–response coefficients.

The design of our study obliges us to recognize some caveats about the conclusiveness of our results. First, since firms do not change from being an Item 17—or Item 18—during the sample period, we cannot be completely certain that the results are not attributable to some omitted variable firm characteristic for which Item 17 and Item 18 are proxies. Second, our empirical analyses examine annual associations, which does not allow us to assign direct causality. Finally, the use of a matched-pairs sample in the analyses reduces the generalizability of the results.

Although there is pressure on the SEC to relax filing requirements for foreign registrants, supporters of the current disclosure rules believe Item 18 rules may be useful to U.S. investors. However, to understand fully the cost–benefit trade-offs of these disclosures, the analysis would have to isolate the opportunity costs and specific reasons why a foreign registrant that only lists securities on a U.S. exchange chooses not to use Item 18. A reduced disclosure filing, such as those allowed under Item 17, may increase the cost of equity capital, compelling managers to use other financing mechanisms, but may save the opportunity cost of divulging sensitive and competitive information under Item 18 rules. A rational market perspective suggests that managers of foreign registrants weigh the costs and benefits of all reporting options and choose their disclosure options accordingly. Future studies might consider the direct effects of these choices on firms' costs of capital and competitive position.

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## Discussion

A discussion of the paper “Differential levels of disclosure and the earnings–return association: evidence from foreign registrants in the United States” by Edward Douthett, Jr.,  
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### 1. Introduction

In this paper, the authors’ stated objective is to examine the relation between changes in earnings and market returns under alternative disclosure options (Item 17 vs. Item 18) for foreign companies that trade in U.S. capital markets. That is, they seek to address whether the association between unexpected earnings and changes in stock prices is a function of how forthcoming firms are in their disclosure. While this relation has been studied for U.S. firms (see, for example, Gelb & Zarowin, 2002; Lundholm & Myers, 2002), I know of no studies investigating this relation for foreign firms. Therefore, if there is a reason to expect that the relation would be different for foreign versus domestic (U.S.) firms, then this study has the potential to make a contribution to the accounting literature. Alternatively, the paper could be interpreted as addressing whether investors find Item 18 disclosures “more useful” than Item 17 disclosures.

### 2. Discussion methodology and findings

The authors use ‘matched-pair’ designs to investigate the relative earnings response coefficients (ERCs) of Item 17 filers versus Item 18 filers, Item 17 filers versus U.S. firms, and Item 18 filers versus U.S. firms. They find that the ERCs for Item 18 filers are significantly higher than those for Item 17 filers, ERCs are significantly higher for U.S. firms

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than for Item 17 filers, and ERCs are not significantly different for Item 18 filers and U.S. firms. While the second and third findings are largely consistent with those in Frost and Kinney (1996), the difference in the ERCs of foreign registrants filing with Item 18 versus Item 17 is a new finding. The authors interpret this finding as suggesting that the additional disclosures provided under Item 18 decrease investor uncertainty, and this decrease results in a lower cost of capital for firms that are more forthcoming in their disclosure.

### 2.1. *Sample selection and research design*

According to the authors, there are 966 firm-year observations with Item 18 filings and the required Compustat data, and 299 Item 17 firm-year observations with Item 17 filings and the required Compustat data. In their first regression (Item 17 vs. Item 18), the authors match on country, four-digit SIC code, year, and assets. This yields 73 pairs (or 146 observations) included in their tests. That is, the use of a matched-pair design results in the loss of 1119 otherwise useable observations. A similar reduction in power exists for the second and third regression.

It is not clear why the authors chose a matched-pair design in light of the extremely poor matches (for example, assets are significantly different between subsamples), their ability to control for country, industry and size in the regression analysis, and the limited number of candidate observations. A more powerful research design would be to include all observations with useable data and control for those variables (i.e., country, industry, year, and firm size) thought to (potentially) affect the association between the level of disclosure and the ERC.

Given that the authors chose a matched-pair design, a few comments come to mind. First, matching at the four-digit SIC code level seems unnecessarily restrictive and likely resulted in the loss of many observations. Matching at the two-digit SIC code level is quite common when matched-pair designs are used. Second, the matching procedure should be described more clearly so that it can be duplicated. For example, it is unclear how the authors prioritize SIC codes versus assets.

### 2.2. *The returns–earning model*

To test for an association between a change in earnings and the level of disclosure, the authors employ the “traditional ERC model” (Collins & Kothari, 1989) and interact a number of independent variables with the change in earnings over the year. That is, they run the following model:

$$\begin{aligned}
 R = & \alpha_0 + \alpha_1 \Delta \text{Earnings} + \alpha_2 \Delta \text{Earnings} * \text{Disclosure indicator} + \alpha_3 \Delta \text{Earnings} * \text{Raise} \\
 & + \alpha_4 \Delta \text{Earnings} * \text{Growth potential} + \alpha_5 \Delta \text{Earnings} * \text{Earnings persistence} \\
 & + \alpha_6 \Delta \text{Earnings} * \text{Risk} + \varepsilon
 \end{aligned}$$

The independent variables are included to ensure that the Disclosure indicator (the variable of interest) is not merely a proxy for other factors that may influence the chosen level of



disclosure and to control for factors previously documented to affect the returns–earnings association.

With respect to the model specification, Donnelly (2002) shows that the model specification matters when earnings contains both permanent and transitory components. Specifically, a model that includes both the level and changes in earnings may be superior than that used because it is more consistent with the earnings valuation model (Ohlson, 1995) and because it helps to mitigate the errors-in-variables problem associated with the estimation of unexpected earnings (Ali & Zarowin, 1992; Kothari, 2001). Further, the authors are interested mainly in  $\alpha_2$  (the coefficient on  $\Delta \text{Earnings} \times \text{Disclosure indicator}$ ) but because the Disclosure indicator does not enter the equation separately, the interaction term could reflect the difference in returns between the groups in question. For example, consider the results in Table 2. The returns of U.S. firms are significantly greater than those of foreign firms (and returns of Item 18 firms appear to be significantly greater than those of Item 17 firms). Reporting the regression results where the Disclosure indicator enters in separately would control for the difference in intercepts.

It is interesting to note that the explanatory power across samples (in Table 3) is highly variable. While the adjusted  $R^2$  values seem somewhat low when foreign firms are compared with U.S. firms (.050 and .081), the adjusted  $R^2$  is quite large (.451) when Item 18 filers are compared with Item 17 filers. I suspect that this result may be due to influential observations, which can be identified using procedures in Belsley, Kuh, and Welsch (1980). More importantly, the coefficient estimate on  $\alpha_2$  seems implausibly large. Specifically, for Item 17 filers, the ERC estimate is 2.107, while for Item 18 filers, the ERC estimate is 5.373. If this were driven by the cost of capital (as the authors suggest), the cost of capital would have to be approximately *half* as large for Item 18 filers as for Item 17 filers! If increased disclosure really has such an effect on the cost of capital, then it is difficult to understand why all managers would not choose to file under Item 18. While the authors make the conjecture that proprietary information drives the choice of filing, additional evidence supporting this conjecture (for example, an analysis of filing type by industry) would be informative.

Additional suggestions regarding the analysis follow. First, for foreign firms, the change in earnings is often negative, suggesting that there may be more loss firms in the foreign firm samples. Because ERCs likely vary for gains versus losses, the inclusion of a loss indicator (in Table 3 analyses) may be revealing. Further, the analysis contains multiple-year observations per firm (approximately 2.65) so the authors use a Durbin–Watson test to check for autocorrelation. However, they do not have a sufficient number of observations per firm to apply this test correctly, and so cross-sectional correlation remains an issue. Lastly, matching on firm size (assets) is intended to control “for difference in firm-size related information environments” but there are likely to be many non-firm-size-related differences in information environments for foreign versus U.S. firms. For example, these samples likely vary with respect to analyst activity and business press coverage. Additional controls for these differences may be warranted.

With respect to the variable definitions, a few suggestions can be made. First, the authors set the indicator ‘Raise’ to one if the firm raised capital in the current year, presumably because managers must file Item 18 disclosures when going to the equity markets. However,

if firms do not switch back and forth between Item 17 and Item 18 filings, then the Raise indicator should be set to one if the firm raised capital in the current or prior years. Second, the authors measure growth potential as the market-to-book ratio. A better measure may be to follow Collins and Kothari (1989) subtract out the median market-to-book in that year (to control for market-wide growth opportunities). Finally, the authors lose many observations because their proxy for earnings persistence is the AR(1) coefficient on 5 to 10 years of annual earnings run by firm. When faced with similar data constraints, Dechow, Hutton, and Sloan (1999) and Lundholm and Myers (2002) measure earnings persistence as the AR(1) coefficient on 2 years of annual earnings run by industry.

### 3. Contribution

The authors motivate the paper, in part, by stating that the results in Frost and Kinney (1996) are consistent with many other unexamined hypotheses (e.g., alternative sources of disclosure) and that their results do not help us to understand the link between disclosure and the cost of capital. The present study fails to address the first concern, and while they do assert that “if additional disclosures of useful information reduce investors’ informational uncertainty, then investors will apply lower discount rates,” this is hardly sufficient to address the second concern. Moreover, it is not clear to me that the authors can (or should) attempt to address this second concern in the present study because they cannot convincingly control for all of the determinants of returns.

Further, the authors state that their “results suggest that higher levels of disclosure are related to lower discount rates and higher earnings response coefficients.” When discussing their model, they state that they “expect  $\alpha_2$  to be positive and statistically significant if earnings reported under Item 18 contain less informational uncertainty than earnings reported under Item 17.” My interpretation is that if  $\alpha_2$  is positive and statistically significant, then a given innovation in earnings has a greater effect on returns for firms with greater disclosure. However, as argued in Lundholm and Myers (2002), if disclosure is “good,” then a unit change in earnings should contain *less* surprise because the good disclosure would presumably have allowed market participants to forecast the change in earnings. In fact, Lundholm and Myers test the relation between the level of disclosure and ERCs using a different proxy for the level of disclosure (AIMR scores) and find that “good disclosure” *reduces* observed ERCs (but increases ERCs on future earnings). Therefore, it might be interesting to investigate *why* opposite conclusions are drawn. Could the persistence of earnings explain these differences? Could it be that the disclosures of interest in the two studies describe something fundamentally different (e.g., disclosures that inform investors about innovations in future earnings versus disclosures that allow investors to feel confident in the quality of current period earnings changes)?

In conclusion, this paper raises many potentially interesting questions. Further research may seek to explore such questions as whether (and how) the cost of capital is associated with the level of disclosure, why some managers choose *not* to increase disclosure in light of potentially large benefits, what factors explain the choice of disclosure level, and why the



level of disclosure may have a different effect on the relation between unexpected earnings and returns for foreign versus domestic firms.

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## Reply

# Response to discussion on “Differential levels of disclosure and the earnings–return association: evidence from foreign registrants in the United States”

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The discussant raises a number of points that need to be considered in relation to our paper and future research. We will address the points in same order presented by the discussant.

## 1. Sample selection and research design

The discussant questions why we use a matched-pairs design when a larger number of observations is available. She correctly notes that matching on four dimensions, country, industry, year, and size, causes a large loss of observations, which if used could provide a more powerful test of the hypotheses.

There are several reasons why we use a matched-pairs design. First, we want to make our results directly comparable to results presented by Frost and Kinney (1996), which also use a matched-pairs design. We contend that some of the insignificant results of Frost and Kinney are due to the omission of important control variables in the analysis of earnings–return correlations. Note that we replicate Frost and Kinney’s *Z* test and get similar results: the earnings–return correlation of Item 17 and Item 18 foreign registrants is not significantly different from the earnings–return correlation of matched U.S. firms (see footnote 2 in the paper). When we compare these same correlations after adding controls for financing and ERC determination, we get significant differences. Thus, by using the same research design that Frost and Kinney used, we can make a stronger case that the omission of control variables may explain the insignificance in their results.

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The second reason we chose to use a matched-pairs design is simply to increase the probability of identifying a treatment effect (of disclosure) and not necessarily of measuring the magnitude of the treatment effect. Randomization through matching may do a better job of reducing the effects of treatment bias than standard regression on large unmatched samples (see Heckman, Ichimura, & Todd, 1997; Rubin 1979). Larger samples typically require large differences in means between the treatment group and the control group, and while larger sample sizes may increase the precision of the estimates, they may also increase the bias on treatments. This is particularly problematic in the disclosure research where sources of bias through measurement error, omitted variables, and specification error are likely to be significant.

Finally, power is not an issue in this study. Significant differences in the regressions are achieved with the current matched samples. Unless we change the purpose of our tests, it does not seem necessary to expand the sample for more statistical power.

The discussant also comments about the poor size matching as evidenced by the significant differences in assets between the subsamples. We agree that the size matching of the Item 18 filers to U.S. firms may not be effective since all three size proxies (assets, sales, and market value) are statistically different between the subsamples. However, the size matching for Item 17 to U.S. firms appears to be effective since two of the three size proxies are not statistically different between the subsamples (see Table 2, Panel A of the paper). Although not reported in the paper, two out of three size proxies are not significantly different between Item 17 and Item 18 matched firms. The means for Item 17 matched to Item 18 filers were not provided since they are qualitatively the same as the descriptive statistics provided for Item 17 filers in the second matched-pairs subsample (Table 2, Panel A; Item 17 matched to the United States) and the Item 18 filers in the third matched-pairs subsample (Table 2, Panel B; Item 18 matched to the United States).

In summary, size matching may not be effective in one of the three matched-pairs analyses, namely the analysis on the Item 18 to U.S. matches. This particular analysis, while important to the study, does not directly impact the basis for the primary findings in the study. Rather, the matched-pairs analysis of Item 17 to Item 18 disclosures and Item 17 to U.S. disclosures form the basis for the primary findings in the study. If there are any mismatches of size, it is due to the fact that size is given the lowest priority in the matching process. We first match on country (Item 17 to Item 18 only) then industry, year, and size. Had we first matched on size, there would have been a greater likelihood of higher sample attrition than actually experienced in our analysis.

## **2. The returns–earnings model**

The discussant recommends using Ohlson's (1995) valuation model, which may be a superior specification because it considers both the level and the changes in earnings. Although we do not footnote this, earlier drafts of the paper relied on Ohlson's model with similar results. We changed to a Collins and Kothari (1989) ERC model based on review comments from one of the referees.



The discussant also suggests that we report results where the disclosure indicator enters the regression separately to control for difference in intercepts. We report the results to this sensitivity in footnote 12, indicating that the estimated coefficients are not qualitatively different.

The discussant raises concerns about the adjusted  $R^2$ , noting that they range from 0.05 to 0.451. She suggests testing for influential observations using Belsley, Kuh, and Welsch (1980). During the study, we ran sensitivities deleting extreme values of the residuals, which did affect the significance level of the estimated coefficients. The use of Belsley et al. would be a more rigorous test of influential observations.

She also comments about the relative magnitude of the Item 17 and Item 18 ERC estimates, indicating that our results imply a cost of capital that is half as large for Item 18 filers as for Item 17. The ERC estimates are only as good as the specification and proxy constructs will allow, and so it is not likely that bias is completely eliminated in the test. Also, the use of a matched-pairs design means that the results are not generalizable to or from the larger population.

The discussant is concerned with cross-sectional correlation due to multiple-year observations per firm, stating that the results of a Durbin–Watson test are not appropriate in this setting (although it is not clear why the Durbin–Watson is not appropriate in this setting). The referees were concerned with the issue of serial correlation as well, and to address their concern, we report in the paper the results of sensitivities aimed at eliminating cross-sectional or serial correlation from the sample. The sensitivities involve running the regressions as follows: (1) using Newey and West's (1987) heteroscedasticity and autocorrelation consistent covariance matrix, (2) using the means of the multiple-year variables that reduces the observations to one per firm, (3) randomly limiting the number of observations per firm to one, and (4) running the regressions by year. The results of these four sensitivities, and a sensitivity that includes a dummy for loss firms, are not qualitatively different from the results reported in Table 3.

Lastly, the discussant recommends alternative proxies, additional control variables, and suggests we clarify whether the nature of the disclosure is additional or preemptive information about current earnings and how that will affect the earnings–return relation. These suggestions are insightful and useful in extending and expanding future research on disclosure in international capital markets.

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# A multinational test of determinants of corporate disclosure

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## Abstract

This paper develops a model of cultural, national, and corporate factors that influence the financial disclosure of corporations. This model is then tested empirically using a sample of companies from 33 countries. The paper extends the literature on disclosure by considering a larger number of variables that represent determinants of disclosure and by empirically testing the model using a larger number of countries than prior studies. The model is tested using disclosure scores included in *International Accounting and Auditing Trends*. The model considers the influence of culture, national political and economic systems, and corporate financial and operating systems on the amount of corporate financial disclosure. The results of the regression model indicate that disclosure is influenced by culture, national systems, and corporate systems. The model developed is shown to provide a reasonably good explanation of the disclosure decision. Differences among the components of the model help explain differences in observed financial disclosure between companies in different countries and between companies within the same country. The results indicate that the financial-disclosure decision for a company is complex and influenced by many national and corporate factors.

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*Keywords:* Disclosure; Culture; Political systems; Economic systems; Financing; Operating

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## 1. Introduction

There is a large body of literature on financial reporting in cross-national contexts (Meek & Saudagaran, 1990; Saudagaran & Meek, 1997). Zarzeski (1996) demonstrates that disclosure depends on culture and market forces represented by the level of foreign sales, financial

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leverage, and firm size. Her study is limited to seven countries and includes 256 small, medium, and large firms. Other studies have examined how other factors affect disclosure (Adhikari & Tondkar, 1992; Belkaoui, 1983; Douppnik & Salter, 1995; Meek, Roberts, & Gray, 1995; Nair & Frank, 1980; Salter, 1998; Salter & Niswander, 1995; Wallace, Naser, & Mora, 1994).

Financial-disclosure decisions are not made in a vacuum. The financial reporting disclosure decision is one way that corporations communicate information. The mix of communication sources and the quantity and quality of information disclosed are influenced by many factors that need to be examined in order to thoroughly understand disclosure choices. To date, individual papers in the literature investigating international disclosure choices have not considered a complete set of factors that influence the amount of disclosure. Since several of these factors have led to weak or inconsistent results, this approach in the literature (considering less than a complete model) has resulted in an incomplete understanding of the disclosure process.

This paper takes a broader view, combining many of the factors considered individually in the existing literature. By examining these factors together, we can develop a more comprehensive model of the disclosure decision and we can control for interrelationships among various influences on disclosure. Since the variables included in our model are less likely to be a proxy for other factors the weak or inconsistent results of prior literature may be improved upon. This study seeks to extend the financial reporting disclosure literature by considering a larger number of countries than in prior studies and by testing a broader set of factors that represent determinants of disclosure. The effects of culture and a number of social systems have already been modeled (Harrison & McKinnon, 1986). We then identify disclosure determinants from cultural, national political and economic systems, and corporate financial and operating systems.

Examining the influence on corporate disclosure decisions of all these systems together makes a significant contribution to the international disclosure literature. In this paper, we develop a model that specifies how accounting systems interact with other cultural, national, and corporate systems and then empirically test this interaction. This relationship is important to study since the effect of changes in national and economic policies on accounting disclosures is not well understood. Too often, financial-reporting disclosure is considered exclusively a firm-specific phenomena, but this study will show that far more is involved. Empirically testing these proposed interrelationships with a large number of countries contributes to our understanding of the role that accounting plays within the social systems of a nation.

We use multiple-regression analysis to test the significance of disclosure determinants. Our results indicate that disclosure is influenced by factors from each of the identified systems even while controlling for all of the systems at the same time. To determine the influence of the systems, we use *F* tests. The results indicate that financial disclosure is a function of culture, national political and economic systems, and corporate financial and operating systems.

Some of the determinants we considered, such as foreign sales and legal systems, have already been documented in the literature. Other determinants, such as religion, political freedom, auditor, and leverage have been tested and shown to have a weak or inconsistent relationship with disclosure. Some variables, such as dividends and the number of foreign exchanges or industries, have received little attention in prior studies. By considering all these variables together, we show that numerous determinants influence disclosure including

several that have not been empirically examined in the prior literature or yielded consistent results. We find that disclosure is a more complex process than previously documented. This study provides a more complete analysis of the corporate-disclosure decision than does the existing literature and tests these conclusions on a broader set of countries.

The paper proceeds as follows. The next section discusses the existing literature, develops the model used in the paper, and states the hypotheses to be tested. Data are discussed in Section 3. Methodology is discussed in Section 4, followed by analysis of results in Section 5 and then conclusions in Section 6.

## 2. Theory development

Accounting is a social system.<sup>1</sup> Harrison and McKinnon (1986) model social change within the context of culture, intrusive events, intra-systems activity, and trans-system activity.

Accounting exists along with other systems, such as political systems and economic systems. Systems within a country share a cultural environment. Culture influences what goes on within each system as well as how the systems interact with one another.

Intra-systems activity refers to interactions among elements of a system. Trans-system activity refers to interactions among different systems. Intrusive events combine with these interactions to produce system change.

Fig. 1 is a model of corporate disclosure. This model is used in the study to examine the factors that influence disclosure at the corporate level. The model incorporates national culture, national political systems, national economic systems, and corporate systems. These systems are all shown to interact with one another in the model, resulting in a corporation's response about the amount of information to disclose.

The Enron situation provides an excellent example of how this model functions. Enron executives made corporate financing and operating decisions in light of existing cultural and national systems in the United States. These same executives made decisions about what to disclose about the company and its various special purpose entities. Investors and creditors relied on these disclosures, interpreting them within U.S. culture and national systems (laws, GAAP, etc.) These disclosures were not adequately transparent to represent economic reality for Enron. The company declared bankruptcy and many individuals that had relied on the disclosures made by Enron sustained losses (Thomas, 2002).

The Enron bankruptcy can be considered an intrusive event that has created a catalyst for changes within the corporate disclosure model. This bankruptcy resulted from behavior (excessive private benefit by a few at the expense of many) inconsistent with U.S. cultural norms. Viewing these misdeeds culturally, individuals from different walks of life have created pressure on other corporations and Congress (culture interacting with national systems and corporate systems).

<sup>1</sup> Harrison and McKinnon (1986) describe social systems in terms of three elements: interdependence, norms and values, and cultural determinants of behavior. Their paper discusses accounting as a social system.



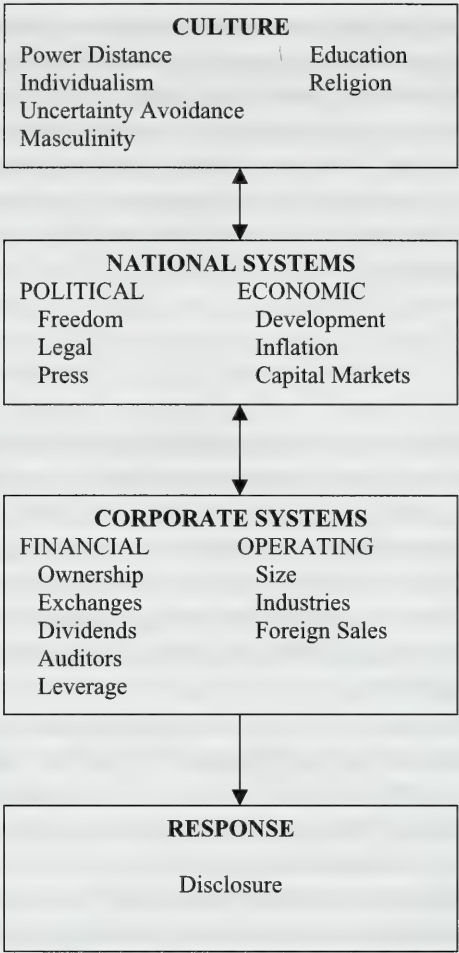


Fig. 1. Model of corporate disclosure.

The bankruptcy itself (corporate-system change) also created pressure directly on national institutions: Congress, the Securities and Exchange Commission (SEC), the American Institute of Certified Public Accountants (AICPA), and the New York Stock Exchange (NYSE) all immediately started considering what went wrong. This pressure has been leading to promulgating new legislation, changes in the audit process, greater involvement of the SEC in accounting and auditing, and changes in listing requirements by the NYSE. An intra-system change is also occurring within national systems; the role of the SEC in accounting and auditing is being examined. Congress, the SEC, and the accounting profession are examining the proper role of government in monitoring the accounting and reporting of corporations as well as overseeing the audit process. In addition, the Enron bankruptcy has caused intra-system activities, causing other corporations to examine their own situations to determine if they are making some of the same



errors as Enron. Companies are examining their financial and operating structures as well as their disclosures.

Corporate systems are also changing as a result of the changes occurring in the culture (less trust that management is doing what is in shareholders' interests) and national systems (laws and regulations being discussed). There is pressure on companies to examine the use of stock options and incentives in changing ownership structures, the size and diversification of corporations, and the corporate governance structure. The auditor–client relationship is also likely to be changed as a result of voluntary actions by audit firms and legislation. Board of director membership is likely to change as a result of legislation and/or exchange listing requirements. One change in the corporate system has already resulted. The number of S&P 500 companies choosing to expense stock-option costs has risen from 2 to 90 (Levinsohn, 2002). Thus, changes in national systems are directly impacting corporate systems.

The end result of all these changes on disclosure is not yet fully determined. Corporations are voluntarily providing more information on some aspects of their businesses. It is likely that a number of mandated disclosures will also result. However, this example shows how a corporate system change by one corporation can lead to changes and interactions between and within culture, national systems, and corporate systems. These interactions and repercussions are what is meant by the double-sided arrows in Fig. 1. A significant change anywhere in the model (intrusive event) can lead to multiple changes throughout the model (intra-system and trans-system changes). The disclosure decision is thus extremely complex and dynamic as the model never comes to rest at a steady state. This paper considers all of these systems in determining a corporation's disclosure response.

The individual systems and operational variables within those systems used in the empirical tests are discussed next. While these systems are discussed individually, it must be noted, as the previous example illustrates, that these systems are constantly interacting with one another and a change in one system can lead to responses in all the other systems. Thus, the model is dynamic and the corporate disclosure response, therefore, is also a dynamic variable.

### *2.1. National culture*

Culture influences how people perceive situations and organize institutions. Hofstede (1991) identifies five cultural dimensions: power distance, individualism, uncertainty avoidance, masculinity, and long-term orientation. Long-term orientation is not used in this study, however, because it is negatively correlated with individualism (Yeh & Lawrence, 1995).

Power distance represents the extent to which people tolerate unequal distribution of power within society. A high power distance index score means that people have a high tolerance for power inequality. Individualism refers to the extent to which people are independent as opposed to collectivism, in which people are organized into strong groups. Uncertainty avoidance represents the extent to which people feel threatened by unknown situations. Masculine societies stress achievement, heroism, assertiveness, and material success. Feminine societies stress relationships, modesty, caring for the weak, and quality of life.

Gray (1988) uses these cultural dimensions to develop four accounting values: professionalism, uniformity, conservatism, and secrecy. Of these values, secrecy relates to the

amount of disclosure. As secrecy increases, the amount of public disclosure decreases. Secrecy increases with uncertainty avoidance and power distance and decreases with individualism and masculinity. Salter and Niswander (1995) find that individualism and uncertainty avoidance were associated with secrecy as predicted but that power distance and masculinity were not significant. Zarzeski (1996) finds that disclosure (the opposite of secrecy) increased with individualism, masculinity, and power distance and decreased with uncertainty avoidance. She comments that power distance may have had the opposite sign predicted because it is moderately correlated with individualism.

Other cultural factors may also influence corporate disclosure.<sup>2</sup> As the level of education increases, the number of financial statement users may be expected to increase (Doupnik & Salter, 1995). As a result, the amount of corporate disclosure may increase with the level of education.

Religious beliefs greatly influence the cultural fabric of a country. Hamid, Craig, and Clarke (1993) note that the Islamic tradition places ethical/social activity ahead of individual profit maximization. Speculative investments, such as margin trading, are not allowed because Islam prohibits transactions involving uncertainties. Partnerships are a common form of business organization. These factors limit stock market development. Trust underlies relationships, reducing the need for accounting as a means of financial reporting. Thus, companies in Islamic countries may disclose less information. Goodrich (1986), however, finds no relationship between accounting principles and socioeconomic factors. One of the socioeconomic factors was a Catholic culture.

This paper considers Hofstede's (1991) cultural variables, education, and religion to be measures of a country's culture. These cultural factors are expected to have an effect on the amount of disclosure the companies within a country provide.

# **H1. National culture influences the amount of corporate disclosure.**

## *2.2. National systems*

National systems include institutions that affect all companies within the country. This study considers political systems and economic systems. The political and economic systems chosen by a country are influenced by and influence that country's culture. Thus, culture interacts with the national systems as they in turn influence corporate-level decisions.

### *2.2.1. Political systems*

Belkaoui (1983) argues that disclosure increases with political freedom. Political freedom can be measured by political rights and civil liberties. Political rights are the ability to participate in the political process through such means as voting. Civil liberties represent

<sup>2</sup> Nair and Frank (1980) use official language as a proxy for culture and find that language helps to classify countries as to amounts of disclosure. However, they provide no conceptual explanation for their results. Saudagaran and Meek (1997) note that accounting seems to be more developed in English-speaking countries than in other countries. They also provide no causal explanation. Most countries with English as an official language use a common law legal system. Therefore, language is not directly considered in this paper.



individual freedom from state control (McColm, 1992). Political structure, such as democracy or monarchy, also reflects the degree of political freedom. While Belkaoui expected political freedom and corporate disclosure to be correlated, he found no significant relationship. However, Goodrich (1986) does report a significant correlation between political system and accounting clusters. Deese (1998) finds a correlation between political freedom and economic freedom. Deese argues that economic freedom may be related to economic development and, thus, corporate disclosure (Salter, 1998).

**2.2.1.1. Legal system.** A country's legal system may influence the financial reporting system. Salter and Doupnik (1992) classify countries into the common law family and the Romano-Germanic family and demonstrate that the legal system is related to accounting practices. The common law family is characterized by solutions to specific cases. The Romano-Germanic family is characterized by codified laws, including national accounting standards. Common law may create an environment, such as a shareholder-oriented corporate governance model, where corporate disclosure is increased to satisfy the specific needs, including information asymmetry, of individual corporations (Ball, Kothari, & Robin, 2000). Doupnik and Salter (1995) report that common law countries have higher disclosure scores than code law countries. Jaggi and Low (2000) report similar results at the individual firm level.

**2.2.1.2. Press.** Cooke and Wallace (1990) list financial press as a factor that influences accounting regulation. Newspapers are a significant source of information. Societies that desire more information may support more newspapers. Companies may respond to this desire for more information by increasing the amount of information they disclose.

A country's political system is described here in terms of the freedom of citizens, the form of the legal system, and the influence of the press. These factors are expected to have a significant relationship with the amount of corporate disclosure.

**H2. National political systems influence the amount of corporate disclosure.**

### **2.2.2. Economic systems**

Economic systems influence how companies and investors relate to one another. These systems provide structures that influence the information that needs to be disclosed. This study considers how disclosure is related to economic development, inflation, and the capital markets.<sup>3</sup>

<sup>3</sup> Berry (1987) and Nobes (1983) classify countries as macro-uniform or micro-based in economic orientation. Nobes (1987) describes accounting in the macroeconomic framework as being subordinated to national economic policies. In uniform systems, governments use accounting to administer business policies. Microeconomic systems have market-oriented economies where accounting is focused on businesses, independent of government. Companies in microeconomic systems with market-oriented economies would be most likely to benefit from disclosing information. Doupnik and Salter (1993) find that microeconomic countries have a higher level of disclosure than macroeconomic countries. However, economic orientation is highly correlated with the legal system. In particular, most common law countries are microeconomic and most code law countries are macroeconomic. Therefore, economic orientation is not tested in this paper.



**2.2.2.1. Economic development.** As an economy becomes more developed, firms need to raise more capital. As a result, the need for financial reporting increases. Salter (1998) finds that average firm disclosure is higher in developed countries than in emerging markets. Similarly, Adhikari and Tondkar (1992), using stock exchange disclosure scores, find marginal evidence that disclosure is lower in agrarian economies.

**2.2.2.2. Inflation.** Meek and Saudagaran (1990) identify inflation as an environmental factor that influences accounting. Inflation violates the historical cost assumption. Companies that operate in environments with high inflation may be more likely to use price-level accounting (Archambault & Archambault, 1999). They may also increase disclosure to further assist investors. Douppnik and Salter (1995) report a positive correlation between inflation and disclosure among countries with a macroeconomic orientation.

**2.2.2.3. Capital markets.** Capital markets provide opportunities for investors to trade securities. The nature of capital markets will then influence the information requirements of investors. Adhikari and Tondkar (1992) and Douppnik and Salter (1995) find that disclosure increases with capital market size. Therefore, companies from countries with large capital markets should disclose more information than companies from countries with small capital markets.

This study models a country's economic system as a function of the extent of economic development, level of inflation, and development of the capital markets. These countrywide economic factors are expected to influence the level of corporate disclosure.

**H3.** National economic systems influence the amount of corporate disclosure.

### 2.3. Corporate systems

In addition to national systems that affect all companies within a country, individual corporations engage in a number of social systems that result in each corporation being unique. This study considers factors that relate to financial and operating systems. These unique responses, however, are determined within the cultural and national systems that the corporation operates in. Likewise, the corporate finance and operating decisions can create changes in the national and cultural systems.<sup>4</sup>

#### 2.3.1. Financial systems

Financial systems deal with the capital-generation process. This study considers ownership, exchange listings, dividends, auditor, and leverage.

**2.3.1.1. Ownership.** Investors are a primary beneficiary of corporate disclosure. However, investors who own a large percentage of a company are more able to obtain information directly from the company. Companies with such large block owners are also less reliant on smaller

<sup>4</sup> The Enron discussion earlier in the paper stresses how corporate operating and financing decisions are likely to lead to some national-system changes within capital markets and/or accounting.

investors. As a result, the need for corporate disclosure may decrease (LaPorta, Lopez-de-Silanes, Shleifer, & Vishny, 1998; Schadewitz & Blevins, 1998).

**2.3.1.2. Exchange listings.** Exchanges establish disclosure regulations. Adhikari and Tondkar (1992) report disclosure scores for leading exchanges. A company's disclosure policy is expected to be influenced by the disclosure policies of the exchanges it trades on. Ownership dispersion may increase with the number of exchanges on which a firm is listed, increasing a firm's disclosure.

**2.3.1.3. Dividends.** Dividends provide information to investors about the amount and timing of future cash flows (Miller & Rock, 1985). The information provided by dividends may substitute for other forms of corporate disclosure. This is especially true in instances where capital markets are less developed and/or subject to manipulation in the trading of securities (Previts & Bricker, 1994). As a result, firms that pay dividends may reduce corporate disclosure.

**2.3.1.4. Auditor.** Wallace et al. (1994) suggest that the contents of annual reports may be influenced by auditors. Larger audit firms may try to improve the perceived quality of the annual reports by having clients disclose more information. As a result, firms audited by one of the Big Six accounting firms may disclose more information than other firms. However, Wallace et al. find no significant relation between auditor size and disclosure among Spanish firms. Similarly, based on a meta-analysis, Ahmed and Courtis (1999) find no relation between auditor size and disclosure.

**2.3.1.5. Leverage.** Meek et al. (1995) and Wallace et al. (1994) predict that highly leveraged firms disclose more information in order to reduce the agency costs of debt. Wallace et al. find no effect of leverage on disclosure. Meek et al. find that disclosure decreases with leverage.

Zarzeski (1996) predicts that disclosure decreases with leverage because creditors may be able to obtain private information. She also finds that disclosure decreases with leverage. Ahmed and Courtis (1999) conclude from their meta-analysis that disclosure increases with leverage. Jaggi and Low (2000) find that disclosure increases with leverage in common law systems and has no significant relation in code law systems. Thus, various studies have reported conflicting results.

Corporations make many decisions about the financial structure of the company. This paper considers block ownership, foreign-exchange listings, dividend policies, auditor choice, and use of debt as components of corporate financial systems. Disclosure choices are expected to be a function of these finance-related decisions.

**H4. Corporate financial systems influence the amount of corporate disclosure.**

### 2.3.2. Operating systems

Companies make a number of operating decisions that may influence the information needs of financial-statement users. This study considers firm size, number of industries, and foreign sales.



**2.3.2.1. Firm size.** Several studies have found that disclosure increases with firm size. Ahmed and Courtis (1999), Meek et al. (1995), Wallace et al. (1994), and Zarzeski (1996) are recent examples of such studies. The theoretical reason for this relationship is less clear. Zarzeski claims it may be due to public demand for information and international resource dependence. Other possible explanations could be that large companies disclose more to reduce political pressure or that large companies have the resources to produce more disclosures. Whatever the reason, large firms are expected to disclose more information than small firms.

**2.3.2.2. Number of industries.** The disclosure needs of firms may increase as the firm operates in a larger number of industries in order to satisfy the information needs associated with obtaining a broader set of resources (Zarzeski, 1996). In addition, the competitive costs of disclosure (Verrecchia, 1983) may decrease as a firm becomes more diversified. Therefore, firms may increase disclosure as they increase the number of industries in which they operate.

**2.3.2.3. Foreign sales.** Companies with foreign sales are likely to require foreign resources, such as labor and capital, to support those operations. Zarzeski (1996) predicts that companies will disclose more information if they have large relative foreign sales in order to acquire the necessary resources. Her results support her prediction.

Operating decisions are also made by corporate managers and directors. Firm size, number of industries, and percent of foreign sales revenue are identified in this study as operating decisions that are expected to lead to differential amounts of corporate disclosure.

**H5.** Corporate operating systems influence the amount of corporate disclosure.

### 3. Data

The sample for this study consists of the 1000 leading industrial companies from the 41 countries included in *International Accounting and Auditing Trends* (CIFAR, 1995). Each company is assigned a total index disclosure score equal to the average of the disclosure scores of seven information categories (number of information variables in parentheses): general information (8), income statement (11), balance sheet (14), funds-flow statement (5), accounting policies (20), stockholders' information (17), and supplementary information (10). The disclosure score for each category is equal to the percentage, excluding non-applicable items, of information available based on 1993 or 1992 annual reports. A total of 85 information variables are included in the seven information categories. Within each category, the disclosure score is an unweighted index of voluntary and nonvoluntary information disclosures. The total index disclosure is an unweighted average of the seven categories. Unweighted scores reduce subjectivity and may be considered the norm in annual report studies (Ahmed & Courtis, 1999). Inclusion of both voluntary and non-



voluntary disclosures is appropriate in this study because both forms of disclosure result from social-system processes.

Company-specific data were gathered from *First Search Worldscope*. These data include geographic segment sales, common equity, total assets, dividends per share, earnings per share, exchanges traded on, number of SIC codes (up to five), auditor, and percentage ownership by owners with at least 5%. Missing data were gathered from various sources such as *Excite Money and Investing Financial Statements*, *Hoovers Company Capsule Financials*, SEC filings, or annual reports. Company-specific data, including foreign sales, could not be found for 239 companies, leaving a sample of 761 in 37 countries.

Cultural-dimension scores were gathered from Hofstede (1991), legal-system family (common law or code law) from Salter and Doupnik (1992) or the *World Factbook Country Profiles* on Lexis–Nexis, and political rights and civil liberty scores from McCollm (1992). Economic development was based on classification as developed or emerging as found in the *World Development Report, 1997*. The following data were gathered from *Emerging Markets Data Base 1996 Factbook*: 1994 GNP, 1985–1994 average inflation rate, and stock-market capitalization. The following data were gathered from the *World Factbook Country Profiles* on Lexis–Nexis: adult illiteracy; the proportion of population that is Roman Catholic, Protestant, Jewish, Islamic, or Buddhist; and newspaper circulation per 1000.

Table 1  
Descriptive statistics

Variable	Mean	Median	Minimum	Maximum	Standard deviation
Total disclosure	75.686	77	16	94	9.017
Foreign sales	0.327	0.276	0	1.000	0.264
Debt ratio	0.666	0.672	0.032	2.295	0.183
Log assets	15.573	15.641	10.440	19.533	1.318
Uncertainty avoidance	55.775	46	8	112	21.389
Individualism	70.792	76	13	91	22.377
Masculinity	59.105	62	5	95	20.079
Power distance	45.551	40	11	104	15.671
Adult illiteracy	0.040	0.03	0	0.62	0.074
Islamic	0.026	0	0	0.998	0.118
Catholic	0.280	0.280	0	1.000	0.276
Protestant	0.368	0.5	0	0.980	0.284
Jewish	0.010	0	0	0.820	0.052
Buddhist	0.128	0	0	0.950	0.294
Political rights	1.332	1	1	6	0.985
Civil liberties	1.670	1	1	5	0.930
Circulation	284.344	317	9	684	138.778
Inflation (%)	13.8	3.3	1.3	913	88.20
Market capitalization deflated by GNP	0.922	1.018	0.137	3.243	0.553
Foreign exchange	0.792	0	0	10	1.550
Dividend payout	0.827	0.363	0	176	7.023
Number of SIC codes	3.939	4	1	5	1.268

Table 2  
Correlation matrix

Variable	TD	FS	DR	LA	UA	ID	MS	PD	AI	IS	CT	PT	JW	BD	PR
TD	1.00	.37	-.09	.12	-.43	.36	-.18	-.26	-.09	.05	-.15	.33	.04	-.24	-.05
FS		1.00	-.05	.05	-.14	.15	-.33	-.27	-.22	-.11	.13	.16	-.00	-.23	-.19
DR			1.00	.23	.25	-.04	.17	-.03	-.11	-.13	-.03	-.10	-.02	.17	-.18
LA				1.00	.18	.20	.32	-.07	-.33	-.26	-.07	-.04	-.06	.19	-.35
UA					1.00	-.48	.43	.33	-.13	-.14	.18	-.61	.03	.51	-.16
ID						1.00	-.12	-.66	-.26	-.39	.14	.63	.05	-.67	-.56
MS							1.00	.13	-.08	-.11	-.16	-.45	-.04	.55	-.11
PD								1.00	.34	.45	.14	-.64	-.17	.41	.59
AI									1.00	.63	.07	-.06	.00	-.13	.69
IS										1.00	-.19	-.24	.05	.08	.58
CT											1.00	-.27	-.05	-.49	-.16
PT												1.00	-.02	-.59	-.22
JW													1.00	-.09	.00
BD														1.00	.17
PR															1.00

Variable	CL	LG	CR	DV	IF	MC	FE	DP	B6	NS
TD	-.11	-.32	.03	.22	-.33	.29	.12	.06	.26	.19
FS	-.19	.18	-.07	.22	-.02	-.15	.29	.04	.04	.24
DR	-.04	.22	.09	.16	.09	-.17	-.01	.04	-.10	.09
LA	-.23	.08	.32	.39	-.16	-.05	.24	.06	.21	.15
UA	.12	.71	-.02	-.03	.11	-.50	.11	-.04	-.18	.12
ID	-.74	-.56	.27	.47	-.18	-.04	-.09	.05	.28	-.14
MS	.13	-.04	.23	.06	-.06	.07	-.04	.01	.02	.03
PD	.67	.19	-.32	-.56	.17	.30	-.02	-.03	-.15	.05
AI	.57	-.28	-.38	-.71	.19	.32	-.10	-.01	-.26	-.10
IS	.54	-.16	-.26	-.48	-.02	.46	-.04	-.01	-.26	-.00
CT	-.19	.09	-.45	-.04	.20	-.45	.04	-.01	-.03	.02
PT	-.45	-.37	.28	.19	-.15	.05	-.10	.03	.20	-.18
JW	-.05	-.14	-.00	.06	-.01	-.05	-.03	-.00	.05	-.11
BD	.40	.43	.28	.02	-.07	.14	.05	-.03	-.09	.14
PR	.83	-.11	-.43	-.80	.09	.57	-.05	-.03	-.17	.03
CL	1.00	.14	-.50	-.71	.19	.39	.01	-.03	-.22	.14
LG		1.00	-.08	.02	.13	-.50	.22	-.05	-.18	.26
CR			1.00	.53	-.24	.00	-.10	.02	.22	-.16
DV				1.00	-.39	-.29	.01	.03	.23	.05
IF					1.00	-.15	.08	-.01	-.09	-.13
MC						1.00	-.12	.02	.10	-.00
FE							1.00	-.02	.03	.17
DP								1.00	.01	-.06
B6									1.00	.00
NS										1.00

This table shows Pearson correlation coefficients between pairs of variables. Detailed variable definitions can be found in the Methodology section of the paper.

Table 1 presents descriptive statistics for the total sample of companies. The table presents the mean, median, minimum, maximum, and standard deviation for all of the continuous and index-value variables considered in the regression models. Firm size ranges from US\$34.2 million to US\$304,140 million, with mean size equal to US\$5798 million.<sup>5</sup> Firm size is similar to that used in Zarzeski (1996) (US\$24 million, US\$192,876 million, and US\$6853 million, respectively). Means of other independent variables used in Zarzeski are also similar to those in the data used in this study. The dichotomous variables (legal system and Big 6 auditor) are not included.

A correlation matrix for the variables used in the study is presented in Table 2. This table shows some moderately high correlations between variables. The correlation of economic development with adult illiteracy and inflation is high enough to create multicollinearity problems. Economic development was therefore not included in the regression model.

There are several high correlations involving cultural variables. This is consistent with the Harrison and McKinnon (1986) model. Moderate correlation also exists among political freedom, legal system, and capital market size. None of these variables were dropped, however, because they generally maintained significance in the results.

#### 4. Methodology

Regression analysis, with the White (1980) heteroskedasticity-consistent standard errors, is used to measure the effect of factors on disclosure. The regression model is

$$\begin{aligned} \text{TD} = & \alpha + \beta_1 \text{FS} + \beta_2 \text{DR} + \beta_3 \text{LA} + \beta_4 \text{UA} + \beta_5 \text{ID} + \beta_6 \text{MS} + \beta_7 \text{PD} + \beta_8 \text{AI} + \beta_9 \text{IS} \\ & + \beta_{10} \text{CT} + \beta_{11} \text{PT} + \beta_{12} \text{JW} + \beta_{13} \text{BD} + \beta_{14} \text{PR} + \beta_{15} \text{CL} + \beta_{16} \text{LG} + \beta_{17} \text{CR} \\ & + \beta_{18} \text{IF} + \beta_{19} \text{MC} + \beta_{20} \text{FE} + \beta_{21} \text{DP} + \beta_{22} \text{B6} + \beta_{23} \text{NS} + \varepsilon \end{aligned}$$

where: TD=total disclosure score gathered from CIFAR (1995); FS=sum of foreign geographic segment sales divided by total sales; DR=(total assets – common equity)/total assets; LA=natural logarithm of total assets; UA=uncertainty avoidance score from Hofstede (1991); ID=individualism score from Hofstede; MS=masculinity score from Hofstede; PD=power distance score from Hofstede; AI=adult illiteracy rate; IS=proportion of population that is Islamic; CT=proportion of population that is Roman Catholic; PT=proportion of population that is Protestant; JW=proportion of population that is Jewish; BD=proportion of population that is Buddhist; PR=political rights score from McColm (1992): 1 (*high*) to 7 (*low*); CL=civil liberties score from McColm: 1 (*high*) to 7 (*low*); LG=legal system, common law = 0 and code law = 1; CR=newspaper circulation per 1000;

<sup>5</sup> Actual total assets are reported here while the log of total assets is reported in Table 1 and used in the analysis. The actual numbers are reported to make comparisons with Zarzeski (1996).



Table 3  
Regression model results (coefficient, *t* statistic)

Variable	Hypothesis	Expected sign	Model		
			A	B	C
Intercept			38.802 (5.76)***	54.841 (12.72)***	48.625 (8.52)***
Foreign sales	H5	(+)	12.120 (8.53)***	9.119 (8.25)***	7.898 (7.53)***
Debt ratio	H4	(−)	− 0.864 (− 0.43)	− 1.865 (− 1.20)	0.889 (0.44)
Firm size	H5	(+)	0.967 (3.20)***	1.146 (4.51)***	0.115 (0.47)
Uncertainty avoidance	H1	(−)	− 0.116 (− 3.94)***	− 0.128 (− 7.57)***	0.076 (1.84)**
Individualism	H1	(+)	0.160 (5.23)***	0.084 (4.60)***	0.147 (3.66)***
Masculinity	H1	(+)	0.052 (1.75)**	0.012 (0.77)	− 0.137 (− 4.51)***
Power distance	H1	(−)	0.223 (4.15)***	0.037 (1.33)*	− 0.129 (− 2.72)***
Adult illiteracy	H1	(−)			− 13.280 (− 1.51)*
Islamic	H1				16.332 (3.02)***
Catholic	H1				9.927 (2.29)**
Protestant	H1				9.580 (2.14)**
Jewish	H1				2.442 (0.58)
Buddhist	H1				13.445 (2.60)***
Political rights	H2	(−)			− 2.757 (− 3.69)***
Civil liberties	H2	(−)			5.878 (7.40)***
Legal system	H2	(−)			− 6.788 (− 3.76)***
Newspaper circulation	H2	(+)			− 0.002 (− 0.52)
Inflation	H3	(+)			− 0.017 (− 2.57)***
Market capitalization	H3	(+)			4.111 (3.34)***
Foreign exchange	H4	(+)			0.573 (3.12)***
Dividend payout	H4	(−)			0.024 (3.69)***
Big 6 auditor	H4	(+)			3.962 (2.58)***

Table 3 (continued)

Variable	Hypothesis	Expected sign	Model		
			A	B	C
Number of SIC codes	H5	(+)			0.895 (4.21)***
Adjusted $R^2$			.303	.291	.499
$F$ statistic			31.797	45.630	27.835
Probability of $F$			.000	.000	.000

\* Significant at the 10% level.

\*\* Significant at the 5% level.

\*\*\* Significant at the 1% level.

IF = 1985–1994 average inflation rate; MC = market capitalization deflated by GNP; FE = number of foreign exchanges on which company trades; DP = dividend payout ratio; B6 = 1 if auditor is a Big 6 firm, 0 otherwise; NS = number of SIC Codes (up to 5).

Wald tests are used to test hypotheses. Therefore, the emphasis is on the explanatory power of sets of variables representing various social systems. The effects of individual variables are presented to allow the reader to better interpret the results. However, the sign or significance of individual variables is not subject to hypothesis testing.

## 5. Analysis of results

Table 3 presents results of the regression models with the White (1980) heteroskedasticity-consistent standard errors. Models A and B replicate the findings of Zarzeski (1996). These models also serve to test whether the data gathered from public sources in this study are comparable to the data she used. Model C tests the hypotheses of this study. Table 4 summarizes the sample size by country for each model.<sup>6</sup>

Model A includes only those variables and companies from those countries included by Zarzeski (1996). Each coefficient has the same sign as Zarzeski and each coefficient, except debt ratio, is significant. The existing literature reports inconsistent results on the effect of leverage on disclosure. The adjusted  $R^2$  is .30, somewhat lower than her .48. Overall, Model A is very similar to the results of Zarzeski.

Model B includes the same variables as Model A, but includes 761 companies from 37 countries. Results are similar to those in Model A except that the coefficient on masculinity loses significance and the coefficient on power distance is only marginally significant. This shows that the increases of disclosure with foreign sales, firm size, individualism, and power distance, and the decrease of disclosure with uncertainty avoidance generalize to a larger set

<sup>6</sup> Jaggi and Low (2000) report similar results in their disclosure study whether they included 503 firms from 28 countries or 401 firms from six countries. Therefore, no minimum sample size per country was used in this study in order to make the results more generalizable.

of countries than that used by Zarzeski (1996). Culture and a multinational orientation are strong influences on disclosure.

Model C includes all variables tested in this study and includes 621 companies from 33 countries.<sup>7</sup> The adjusted  $R^2$  increases from .29 for Model B to .50. Consistent with Zarzeski (1996), the coefficients are significantly positive on foreign sales and individualism. However, the coefficients are not significant on firm size and debt ratio and significant, but the opposite sign, on uncertainty avoidance, masculinity, and power distance. Additional tests were conducted to examine the firm-size result. These are described later in the paper. The cultural variables may have switched signs due to multicollinearity issues. As indicated in Table 2, they are correlated with several other variables.<sup>8</sup>

For each hypothesis, a Wald test was used to measure the significance of the related variables as a whole and an  $F$  statistic was computed. Table 5 presents the results. The tests indicate that each social system significantly influences corporate disclosure.

Disclosure decreases with adult illiteracy, as expected. Furthermore, the coefficients on the forms of religion, except Jewish, are significant. However, the coefficient on Islam is positive, which is inconsistent with Hamid et al. (1993).  $F$  tests indicate that cultural variables as a whole and the cultural variables included by Zarzeski (1996) are significant at the  $P=.0000$  level. The  $F$  test for the cultural variables not included in Zarzeski is not significant. However, the  $F$  tests for the religion variables, which have not been empirically tested previously in the literature, show religion to be marginally significant. These results indicate that cultural variables beyond those considered by Hofstede (1991) influence disclosure.

Political rights and civil liberties are scaled one to seven, with one representing high political freedom. The coefficient on political rights is significantly negative, consistent with Belkaoui's (1983) prediction. However, the coefficient on civil liberties is significantly positive. The coefficient on newspaper circulation is not significant. These results are difficult to interpret because the political-freedom variables are correlated with each other and with newspaper circulation and market capitalization. Companies disclose more if they are from countries with common law (coded zero in the data), consistent with Douppnik and Salter (1995). Overall, these results indicate that political-system variables influence disclosure ( $F=16.57$ ,  $P=.0000$ ).

<sup>7</sup> The model was first estimated with ownership included as a variable. The coefficient on ownership was not significant ( $t=0.14$ ). Furthermore, the sample size was only 504 firms from 32 countries. Given its effect on sample size while not being significant, Model C was then estimated without ownership. The results reported in this study are similar to the results with ownership included except that the coefficient on dividends is significant and the coefficient on circulation is not significant. Results of the estimation with ownership included are available from the authors upon request.

<sup>8</sup> To examine the influence of correlation on the model, variance-inflation factors for the variables were examined. The only large factors were for Buddhist, Catholic, and Protestant religions. All religion variables were removed from the model and it was re-estimated. This resulted in no variance-inflation factors larger than eight. The only change in the significance or sign of any variables was for dividend payout, which lost significance. Because of the stability of the model, even after removing these variables and the result in Table 5 that the religion variables as a group are significant, the full model is reported in the paper.



Table 4  
Sample size by country

Country	Model		
	A	B	C
Argentina		2	2
Australia		21	16
Austria		7	6
Belgium		8	7
Brazil		7	7
Canada		34	28
Columbia		2	0
Denmark		11	9
Finland		12	8
France	40	40	27
Germany	46	46	27
Greece		2	2
Hong Kong	15	15	0
India		7	2
Ireland		6	5
Israel		3	3
Italy		9	6
Japan	87	87	87
Malaysia		11	11
Mexico		6	6
Netherlands		17	14
New Zealand		8	7
Norway	10	10	10
Pakistan		3	3
Philippines		6	6
Portugal		4	4
Singapore		14	13
South Africa		13	12
South Korea		8	8
Spain		4	4
Sweden		20	15
Switzerland		8	5
Taiwan		2	0
Thailand		4	4
Turkey		4	0
United Kingdom	68	68	57
United States	232	232	200
Totals	498	761	621
Number of countries	7	37	33

The coefficient on inflation is significant and negative, opposite the expected sign. This result may be caused by the correlation of inflation and emerging economies. Market capitalization is scaled by GNP to be comparable to Adhikari and Tondkar (1992), Doupnik and Salter (1995), Salter (1998), and Salter and Niswander (1995). As expected, the

Table 5  
Hypothesis test results

Hypothesis number	Hypothesis name	Variables considered	F statistic	Significance
H1	Culture	All cultural variables (UA, ID, MS, PD, AI, IS, CT, PT, JW, BD)	8.84	.000***
		Hofstede cultural variables (UA, ID, MS, PD)	8.15	.000***
		Other cultural variables (AI, IS, CT, PT, JW, BD)	1.69	.120
		Religion (IS, CT, PT, JW, BD)	2.03	.073*
		Adult illiteracy	2.29	.131
H2	Political	All political variables (PR, CL, LG, CR)	16.57	.000***
H3	Economic	All economic variables (IF, MC)	9.53	.001***
H4	Financial	All financial variables (FE, DP, B6, DR)	8.01	.000***
		Debt ratio	0.19	.662
		Other financial variables (FE, DP, B6)	9.94	.000***
H5	Operating	All operating variables (FS, LA, NS)	30.28	.000***
		Foreign sales and log assets	28.34	.000***
		Number of SIC codes	17.68	.000***

\* Significant at the 10% level.

\*\*\* Significant at the 1% level.

coefficient is positive and significant. These two economic variables significantly influence disclosure ( $F=9.53$ ,  $P=.0001$ ).

Disclosure increases with the number of listings on foreign exchanges, dividends, and the use of a Big 6 auditor. The result for dividends is opposite that expected. However, this study does demonstrate a relation between auditor size and disclosure, contrary to the results of Ahmed and Courtis (1999) and Wallace et al. (1994). The auditor-size result is consistent, though, with the finding of Fargher, Taylor, and Simon (2001) that Big 6 auditors are more likely to be used in countries with high levels of disclosure. Wald tests indicate that these financial-system variables are significant as a whole, whether combined with debt ratio or not.

Disclosure increases with the number of SIC codes. The Wald test indicates that the variables representing the corporate operating systems (firm size, number of industries, and foreign sales) are significant ( $F=30.28$ ,  $P=.0000$ ). In general, disclosure increases with the diversity of the firm, represented in this study by foreign sales, listings on foreign exchanges, and number of industries.

The results for financial and operating systems indicate that within the broad cultural and national framework, individual company differences still have a strong influence on

disclosure policies. Thus, disclosure is a response to both within-country (corporate systems) and between-country (cultural and national systems) factors.

### 5.1. Additional tests

Firm size loses significance in Model C. One possible cause is that size proxies for the information included in some of the added variables, which provide more detailed reasons for increased disclosure than just the firm's size. To test this cause, the models were estimated without the variables for Big 6 auditor, the number of SIC codes, and the number of foreign exchanges, since these variables are expected to be related to firm size. Firm size became significant and positive. *F* tests indicate that the three variables are significant as well. This result indicates that, in this study, firm size proxies for Big 6 auditor, the number of SIC codes, and the number of foreign exchanges.

As shown in Table 4, the United States represents over 30% of the sample. To ensure that observations from the United States are not driving the model results, Model C was re-estimated without the U.S. observations. The adjusted  $R^2$  increased to .584, indicating that the model fits the non-U.S. data better than the entire data set. The results were highly consistent. Firm size became positively significant at the .07 probability level. Jewish also became positively significant ( $P$  value = .00) like all of the other religion variables. Significance was lost on adult illiteracy, inflation, and dividend payout. Thus, the U.S. variables have some influence on the model, but the model is primarily robust to the data set used to estimate it. These changes in individual-variable significance did not affect the conclusions regarding the significance of the systems.

Jaggi and Low (2000) conclude that culture is an insignificant determinant of disclosure in common law countries and provides mixed signals in code law countries. They also report that disclosure increases with leverage in common law countries but has no significant relation in code law countries. To test these effects, five variables were added to Model C representing the interaction of leverage and the four Hofstede (1991) cultural variables with legal system. For common law countries, the coefficient on leverage is significantly positive and the coefficient on power distance is significantly negative, as expected. The coefficients on uncertainty avoidance and individualism are significant but of the wrong sign to be consistent with Gray's (1988) secrecy hypothesis and the coefficient on masculinity are not significant.

For code law countries, the coefficients on the Hofstede (1991) variables are all significantly different from common law countries. Disclosure decreases with uncertainty avoidance as expected. However, the effects of the other three variables are all of the wrong sign and all closer to zero for code law countries than for common law countries. These results do not support the Jaggi and Low (2000) conclusion that culture is a more significant determinant of disclosure in code law countries. Furthermore, the coefficient on leverage is not significantly different for code law countries and is positive for both common law and code law countries. Overall, the effects of culture and leverage reported in Jaggi and Low are not replicated in a more complete disclosure model.

The coefficients on Roman Catholic, Protestant, and Buddhist are not significant and the coefficient on Jewish is significantly negative, while Islam remains significantly positive. Ten



of the 14 cultural variables (including the four interaction terms) in this model are significant. Thus, one may conclude that culture is a significant determinant of disclosure but the effect is difficult to specify.

The effects of other variables are similar to those reported in Model C except that the coefficient on circulation is significantly positive, as expected.  $R^2$  increases to .53.

The results from the regression models clearly indicate that disclosure decisions are complex and are influenced by a number of national and corporate factors. The variables affecting disclosure did not always have the expected directional effect, but most of the variables considered were shown to influence corporate financial disclosure.

## 6. Summary and conclusions

This paper models disclosure as a function of culture, national political and economic systems, and corporate financial and operating systems. Based on  $F$  tests, each system significantly contributes to the disclosure model even while controlling for the other systems. This result implies that disclosure is a complex process influenced by a broad set of factors.

The results presented here are consistent with much of the existing literature. This study shows that when those variables considered in other studies are examined together that most of the variables expected to influence disclosure levels do indeed have a significant relationship with disclosure. Even relationships that were not found significant in other research were shown to be significant here. By examining these variables together, the interrelationships among systems can be controlled for. These other studies may have had omitted variables that resulted in a poor fit to the data. The high  $R^2$  and  $F$  statistics for the models in this study indicate that the models fit the data well. The overall conclusion of the analysis is that Fig. 1 represents a reasonable model for disclosure. The firm-based financial reporting disclosure decision is made within a complex process that considers national as well as corporate factors.

This study finds that disclosure is influenced by factors from a broad range of social systems: cultural, political, economic, and corporate. The signs and/or significance of several individual factors changed with model specification, however. This implies that further investigation of disclosure determinants requires control of a variety of factors and further model development to clarify understanding of the influence of these factors on disclosure.

The results, however, did extend the literature by developing a model within which corporate-disclosure decisions are made, and testing that model by simultaneously considering many variables thought to influence disclosure that had only been considered individually in the prior literature.

The model shows that factors in each system can influence the level of corporate financial disclosure through their actions. The model developed in this paper helps explain why disclosure varies across countries (the national system and cultural variables) as well as among companies within a country (the corporate system variables).

The strong relationships shown between disclosure and the cultural and national systems indicate that acceptance of mandated disclosures from a body such as the IASC may be met

with resistance. Disclosure is very much a function of national-level factors, although the paper also indicates that involvement in international markets does lead to increased disclosure and may lead to acceptance of imposed requirements (Zarzeski, 1996).

This paper only examined disclosure. Additional research could examine other accounting issues. A model could be developed and tested for accounting standards or professional standing taking a broad systems view. This study shows that conclusions about accounting-system factors cannot be made without a careful consideration of how the accounting system interacts with other systems in the country and within the corporation.

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## Regulatory flexibility and management opportunism in the choice of alternative accounting standards: an illustration based on large French groups<sup>☆</sup>

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### Abstract

Due to the flexibility of domestic accounting regulations, French groups are entitled to refer to international or American standards for their consolidation. The objective of this research paper is to focus on the choices made by the 100 largest French companies during the last 16 years (1985–2000). In practice, apart from the French rules, three “alternative” sets of standards are used: the International Accounting Standards (IAS), “international principles,” and the U.S. GAAP. The percentage of companies referring to alternative (i.e., non-French) standards rose in the first part of the period, then fell. Additionally, while the number of companies choosing U.S. GAAP increased over the period as a whole, the number preferring IAS or “international principles” has been in sharp decline since 1994–1995. Our results show that in this voluntary move towards international accounting harmonization, the choices made by French companies have clearly varied according to developments in French accounting regulations and the changing power balance between the International Accounting Standards Committee (IASC) and the SEC-FASB. This indicates a certain degree of opportunism by the management, who clearly keeps one eye constantly on the cost-benefit trade-off.

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**Keywords:** Alternative standards; International accounting standards; Accounting harmonization; France

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## 1. Introduction

Nowadays, the products of accounting in one country are used in various other countries (Nobes & Parker, 2002, p. 73). This has come about with the rapid development of international financial markets, as reflected by the increasing number of cross-border listed companies, the importance of transnational mergers and acquisitions, and the power wielded by institutional investors.

Given the constant pressure for more transparency in information disclosure by listed companies, we might naturally expect to see further international accounting harmonization. However, each country does not play an equal role in this harmonization process. Although the International Accounting Standards Committee (IASC), now the International Accounting Standards Board (IASB), has seen its importance grow over the past 20 years, it has had little visible direct effect on companies in Anglo-American countries, mainly because these companies have been required to use domestic rules (Nobes & Parker, 2002, p. 85).

In this context, it would be logical to expect that large French companies might increasingly adopt international (IASB) or American accounting standards in order to compete with their American or British counterparts on international capital markets. The trend toward these alternative accounting standards encompasses two different types of harmonization. The first is forced harmonization: a non-American company adopting U.S. GAAP so as to be quoted on a U.S. stock market, or the European Union imposing IAS on all listed European firms from 2005. The second is voluntary harmonization: a company freely choosing to refer to international or American accounting standards, independent of any regulatory obligation. Our study focuses on the second type of harmonization.

In France, this voluntary submission to standards from beyond national boundaries is made possible by the nonexistence before 1985, then the subsequent flexibility, of the regulations concerning consolidation. The first examples of French companies adopting alternative practices can be traced back to the early 1970s: Saint-Gobain-Pont-à-Mousson first published consolidated financial statements according to the international (at the time, essentially American) accounting principles in 1971, following the merger between Saint-Gobain and Pont-à-Mousson (Cairns, 1997).

Annual reports usually state that the financial statements are prepared in compliance (or in accordance) with a given set of standards, and our study takes a closer look at this choice. In practice, apart from the French GAAP, three sets of standards are referred to: IAS, "international principles" (see explanations below), and U.S. GAAP. In the rest of this paper, we will group these sets of standards together under the concept of "alternative" standards, a term already used by Zambon and Dick (1998/99). Taking large French industrial and commercial groups as examples, we shall attempt to understand the changes in the accounting standards adopted during the last 16 years (1985–2000).

The results of our study confirm that French companies wish to internationalize their consolidated accounting practices. At the same time, we also observed the existence of a certain degree of opportunism by these groups, and a constant cost-benefit trade-off, determined not only by developments in French accounting regulations, but also by the changing power balance between the IASC and the SEC-FASB.



The remainder of our paper proceeds as follows. The next section presents the changes over the last 16 years in the institutional context in France. Section 3 contains our hypotheses, our sample, and the statistical results. Section 4 presents our analysis and interpretation. Section 5 describes some of the limitations of our study and provides some directions for future research. Section 6 concludes the paper.

## 2. Changes in the French institutional context

Before starting to analyze the sets of accounting standards chosen by large French companies, it is important to understand the changes in the institutional context over the last 16 years.

### 2.1. Business funding and capital markets in France

The prevalent types of business organization and ownership differ internationally. Zysman (1983) identified three main types of financial systems in developed countries: capital market systems (e.g., United Kingdom or United States), credit-based governmental systems (e.g., France or Japan), and credit-based financial institution systems (e.g., Germany).

Traditionally, in France, business financing was the preserve of a closed community and highly nationally oriented. Many industries were financed by government or through cozy relationships with local banks. First, the small and medium enterprises, which form the backbone of the French economy, had often developed from cottage industries. Independence and security were their two management creeds, and the capital of their enterprise came essentially from family funding and profit reinvestment (Redis, 1994). Second, the concern for a stable shareholder base and the security of enterprises were always part of the French government's economic policies. This is why in comparison with the United Kingdom or the United States, France has a less well-developed financial market (see Table 1). However, the financial landscape in France has changed tremendously, at least for large companies, since the privatization waves of 1987.

#### 2.1.1. International listing and cross-border investing

An increasing number of French companies are—or aim to be—listed abroad, mainly in New York and London. At the beginning of May 2002, 21 French firms were listed on the

Table 1  
Stock markets in France, United Kingdom and United States

Countries	Market capitalization (US\$ millions in 1999)	Market capitalization (percentage of GDP in 1998)	Value traded (percentage of GDP in 1998)
France	991,484	69.5	40.1
United Kingdom	2,374,273	174.9	86.0
United States	13,451,352	163.4	159.8

Source: *World Development Indicators* (World Bank, 2000): 5.2 Stock markets.



New York Stock Exchange compared to only four in 1994, and eight French firms are now listed on the London Stock Exchange.<sup>1</sup>

The principal motivation for international listing is of course economic because of the tremendous size of these foreign markets. This kind of listing can lower the cost of capital, achieving greater marketability for the company's stock, and therefore reducing dependence on a firm's domestic capital market. However, in addition to economic reasons, major non-American companies have come to believe that one of the hallmarks of a world-class multinational is to be traded in New York (Biddle & Saudagaran, 1991). "(Foreign) companies want not just exposure to U.S. money that a (New York) listing would bring, but the imprimatur of the NYSE for all it means to investors the world over" (Wall Street Journal, 1998).

Furthermore, there has been a boom over the last few years in cross-border mergers and acquisitions by French firms. From media giant Vivendi Universal to carmaker Renault SA, some of France's leading companies are emerging from years of restructuring at home to pursue global ambitions. With globalization driving consolidation in a host of industries, executives have realized they either have to become world powerhouses or risk being eaten. It is thus no coincidence "that since early 2000, French companies have instigated six major takeovers with a combined value of more than \$125 billion—plus dozens of smaller deals" (Woodruff & Delaney, 2001).

### *2.1.2. Presence of international institutional investors on the Paris Stock Exchange*

Back in France, the Paris Stock Exchange has also become more and more international. In the first 8 months of 1999, foreign investment in French stocks and bonds totaled US\$71.7 billion, more than in all of 1998 (Tagliabue, 2000). The Bank of France estimates that foreign investors hold 37.5% of the Paris Stock Exchange at the end of 2000.<sup>2</sup> In the 2002 survey of Georgeson Shareholder, foreign investors control a 42.6% share of the 32 top French companies included in the sample.<sup>3</sup> According to Nobes (2002, p. 23), the increased importance of institutional investors is a reinforcement factor in pressure for disclosure since institutional investors hold larger blocks of shares and may be better organized than private shareholders.

## *2.2. Accounting regulations in France*

### *2.2.1. The Seventh European Directive*

The adoption of the Seventh European Directive in France in 1986 brought significant change to the country's accounting environment. First, until that date, publication of consolidated accounts was not compulsory. Second, due to the nonexistence of fiscal interests in consolidated financial statements, the French accounting authorities left French companies many options concerning presentation and valuation methods, paving the way for the use of alternative accounting standards.

<sup>1</sup> Source: <http://www.iasb.org.uk>, <http://www.nyse.com/listed/listed.html>, and <http://www.londonstockexchange.com>.

<sup>2</sup> Le Monde, June 15, 2001.

<sup>3</sup> Le Monde, June 22, 2002.

### 2.2.2. Reform of the French standard-setting process

Traditionally, establishing and enforcing national accounting standards have been the task of the French government. The National Accounting Plan has been the cornerstone of French accounting regulations since 1942. However, since 1996, the French standard-setting process has undergone profound changes and now involves two bodies:

- The National Accounting Council [*Conseil national de la comptabilité (CNC)*], reformed by the decree of 26 August 1996 and related implementation texts, is a consultative organization. Its main objective is to issue opinions and recommendations on accounting issues.
- The Accounting Regulation Committee [*Comité de la Réglementation Comptable (CRC)*] created by the “Law for the reform of accounting regulations” (6 April 1998) (X, 1998). Its objective is to prepare accounting prescriptions (rules), which may be general or for a particular sector of activity. The rules are adopted in conjunction with the National Accounting Council. The CRC (unlike the CNC) has real regulatory power.

The objectives of this reform were to modernize the French accounting standardization system and make it more effective, and also to enable quicker adaptation to foreign GAAP, particularly U.S. GAAP and IAS. Colasse and Standish (1998) asserted that the reform was an important reorientation of the standardization process, raising the question of the balance between the various socioeconomic actors directly concerned by the process. This balance is to some extent illustrated by the two-tier composition of the French standard-setting body. As a result of the reform, the role of certain actors, primarily the state, was limited, while the roles of other actors, especially accounting professionals and enterprises, were strengthened.

In conclusion, although France traditionally has a very politicized accounting regulation system, recent changes indicate a move towards a model with lower political involvement.

### 2.2.3. Current regulations regarding the reference to “alternative” standards

**2.2.3.1. Regulations currently applicable.** The *Commission des Opérations de Bourse* (COB, equivalent to the U.S. SEC) declared in 1995 that, since there was no set of international standards adopted at a national level, French companies must prepare their accounts and financial statements published in France in accordance with French regulations. Consequently, it decreed that when a French company wants to use a set of international or foreign (American, in practice) standards for its consolidated financial statements, if the chosen standards are not compatible with French standards, the company is obliged to present two sets of accounts (COB, 1995, p. 105).

However, since in many cases French accounting rules are not very different from international or American standards, the COB later stated that it does not object to companies including in the notes a statement to the effect that their accounts or financial statements, prepared in accordance with French standards, are also in compliance with international or American standards (COB, 1998, p. 3).



**2.2.3.2. The Law of 6 April 1998.** The Law of 6 April 1998, already referred to above, addressed another major accounting issue: French companies' rights to use international standards.

Article 6 of this law waives French-listed companies' obligations to publish two sets of accounts. This article was a response to the request by groups raising funds on international financial markets to be allowed to issue a single set of consolidated financial statements, prepared in accordance with the standards used on the major stock markets. The underlying reasoning was that publishing two sets of accounts is an expensive process that interferes with the communication policy and does not benefit investors.

Under the terms of the law, such groups were theoretically exempt from following French standards, provided their financial statements followed international standards that had been translated into French and formally approved by the *CRC* (Accounting Regulation Committee) and complied with E.U. rules.

In fact, the law has never been implemented. Although the translation process has taken place, the *CRC* has never formally approved the IAS for many reasons. An "inventory" of the divergences between European directives and international standards was a long time in preparation and highlights several differences between the European directives and these standards. The *CRC* is currently following the E.U. move, referred to in the introduction, towards adoption of IAS from 2005, and the implementation of Article 6 is no longer a necessity.

**2.2.3.3. Conclusion.** Because in France there is no distinction between financial reporting and tax reporting, individual corporate financial statements are largely influenced by taxation. Conversely, since there is no tax factor in consolidated financial statements, the French standard-setting bodies allow more presentation and valuation options for group accounts, and French groups are entitled to choose alternative practices for their consolidation. As a result, during the period surveyed as explained just above, French companies were (and still are) in the situation accepted by the COB. They can refer to "alternative" standards if, in doing so, they state that these practices are in compliance with French regulations.

### 3. Hypothesis, sample, and statistical results

#### 3.1. Hypothesis

The hypothesis presented below emerges naturally from the developments in the French institutional context described above.

**Hypothesis:** An increasing number of large French companies have opted for alternative accounting standards during the last 16 years.

All of the characteristics identified in our analysis of the French institutional context hint at this trend. Firstly, both IAS and U.S. GAAP have significantly gained in



importance over the last 16 years due to cooperation with the International Organization of Securities Commissions (IOSCO) and the E.U. as regards IAS, and in the case of U.S. GAAP, thanks to the attractiveness of the NYSE and Nasdaq. Secondly, more and more French companies are already or plan to be listed abroad. Even those only listed in Paris still find themselves encouraged to choose alternative accounting standards by the internationalization of the Paris Stock Exchange. Thirdly, this trend is also suggested by recent developments at the European Commission and in the accounting regulation authorities in France.

Our hypothesis is also consistent with the argument of Alexander and Nobes (2001, p. 103) who write, "From the early 1990s onward, many large European companies (notably in France, Germany and Switzerland) have volunteered to use IAS because they believe that international investors prefer financial statements prepared that way."

Glaum's (2000) paper compared results from two empirical studies in 1994 and 1997 of the attitudes of financial executives at large German corporations towards a global harmonization of accounting principles and the adaptation of German accounting to Anglo-American standards. He found that their attitude changed fundamentally over a relatively brief period of time. Managers have now accepted that with the globalization of financial markets, traditional German accounting rules are no longer adequate. They have become much more critical of the German rules, and they are much more welcoming to an opening up of German accounting to the investor-oriented and internationally predominant Anglo-Saxon accounting standards. Furthermore, the author showed that more than 80% of managers believed that 5 years from then, the great majority of German firms would publish their consolidated financial accounts according to either IAS or U.S. GAAP. It is logical to expect the same developments in France since both countries belong to the same continental accounting model.

The regression model we will use in the statistical analysis is therefore a simple linear one:

$$\text{Total alternative} = \alpha_0 + \alpha_1 \text{Year} + \varepsilon$$

where Total alternative = total number of French companies choosing alternative accounting standards in the sample.

### 3.2. Sample

We are interested in the changes in the choice of accounting standards used by French groups during the last 16 years. It is important to note that our study concentrates on their consolidated financial statements only (see above). The sample of large French groups used in this study and the related data are obtained from a survey carried out annually since 1986 by a group of leading French accounting firms (X, since 1986). This survey concerns financial information published in annual reports by the 100 largest French industrial and commercial groups (total reduced to 75 groups for 1999 annual reports and 34 groups for 2000 annual reports). To ensure comparability with the previous years, we adjusted this sample to obtain the

same 100 group sample as the 1999 survey (based on 1998 annual reports) for 1999 and 2000 annual reports. The period surveyed is thus 1985–2000. However, no data are provided for the years 1986 and 1987 as the split among IASC, international, and U.S. standards was not detailed in the annual surveys concerned.

Our sample concentrates on domestic financial reporting by French firms in order to examine their voluntary harmonization measures only. This restriction also neutralizes the impact that international listing can have on reporting for certain French firms: a New York-listed company must publish a set of accounts (or the 20-F form) in U.S. GAAP but can still remain on French GAAP for its domestic reporting (as France Telecom does); while a Paris-only-listed company can also publish in France its accounts in U.S. GAAP (as is the case for Clarins).

The sample is determined mainly based on the criterion of consolidated sales and from the listings published by the French business press. Some corrections have been made to include groups with high value added and to exclude state-owned enterprises and nonlisted companies. It is also important to note that only industrial, commercial, and service sectors are included in the survey; banks and insurance companies are excluded.

The composition of the sample remains relatively stable from 1 year to another. However, every year, several modifications are necessary because of performance fluctuations, merger and acquisition operations, and privatization plans (see Appendix 1 for the composition of the 1999 survey sample based on 1998 annual reports).

For each year, in a manner that remains consistent over the period, the survey (and our complement for years 1999 and 2000) identifies the companies in the sample that makes reference to non-French sets of standards. It distinguishes between (1) IASC, (2) International principles, and (3) U.S. GAAP.

Companies never define the concept of “international principles,” as seen from the following extracts from annual reports. In its 1999 annual report, Accor mentioned in Note 1—Accounting Principles that “the Consolidated Financial Statements of the Accor Group are established in accordance with French regulations presently in force. Due to the international nature of the Accor Group’s activities, it adopts methods that are generally accepted internationally, whenever possible.” Other companies (e.g., L’Air Liquide, Lagardère) talk of “generally accepted accounting principles at an international level.”

Table 2 provides a detail of the alternative accounting standards adopted over the period by the companies surveyed, and Table 3 presents the basic statistics in value.

For the purpose of our statistics, we have treated IAS and “international principles” as a single category, assuming that companies consider “international principles” to be closer to IAS than to U.S. GAAP.

It should be remembered that Table 2 does not list the whole of our sample as listed in Appendix 1. It includes only those companies that referred to alternative standards for at least 1 year during the observation period. Bold characters indicate a change in the standards adopted. Bold, italic characters mean that the change is due to the company entering or leaving the sample.



Table 2  
Detailed data by company

Companies	1985	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Accor	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP
Aérospatiale-Matra (Aérospatiale)	F	F	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	F	F	IAS
Air France	F	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	F
Aventis (Rhône Poulenc)	US	US	US	US	US	US	US	US	US	US	US	US	US	US
Bongrain	F	F	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	F	F
Bull	US	US	US	US	US	US	US	US	US	US	US	US	US	F
Canal+	Out	Out	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	F	F
Cap Gemini (Cap Gemini Sogeti)	Out	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	F	F
Carnaux Metalbox (CMB Packaging)	F	F	IAS	IAS	IAS	IAS	IAS	IAS	Out	Out	Out	Out	Out	Out
Carrefour	US	US	US	US	US	US	US	US	US	US	US	US	US	US
Chargeurs (Chargeurs International)	US	US	US	US	US	US	US	US	US	US	US	US	US	US
Clarins	Out	Out	Out	Out	Out	Out	Out	Out	Out	US	US	US	US	US
Coflexip	Out	Out	Out	Out	Out	Out	Out	Out	Out	US	US	US	US	US
Cie Générale de Géophysique	Out	Out	Out	Out	Out	Out	Out	Out	Out	F	US	US	US	US
Danone (BSN)	US	US	US	US	US	US	US	US	US	US	US	US	US	US
Dassault Systèmes	Out	Out	Out	Out	Out	Out	Out	Out	Out	Out	F	US	US	US
DMC	F	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS
Eridania Beghin-Say (Beghin-Say)	F	IP	IP	IP	IP	IAS	IAS	IAS	IAS	IAS	IAS	IAS	F	F
Essilor	F	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	F
Faurecia (Bertrand Faure)	Out	F	F	F	F	F	F	F	F	F	F	US	US	F
Fives Lille	Out	F	F	F	F	IP	F	F	F	F	F	F	F	F
Hermès	Out	Out	Out	Out	Out	Out	Out	IP	IAS	IAS	IAS	F	F	F
L'Air Liquide	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP	US	US
Lafarge (Lafarge Coppée)	F	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	F	F
Lagardère-Matra Hachette	F	IP	IP	IP	IP	IP	IP	IP	IP	IP	IAS	IAS	F	F
Legrand	US	US	US	US	US	US	US	US	US	US	US	US	US	US
Lesieur	IAS	Out	Out	Out	Out	Out	Out	Out	Out	Out	Out	Out	Out	Out
LVMH	Out	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	US	US	US
Merlin Gerin	F	F	F	IAS	IAS	Out	Out	Out	Out	Out	Out	Out	Out	Out
Moulinex	F	F	F	F	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	F
Norbert Dentressangle	Out	Out	Out	Out	Out	Out	Out	Out	Out	IAS	IAS	IAS	IAS	IAS
OCP	Out	Out	Out	Out	F	IAS	IAS	Out	Out	Out	Out	Out	Out	Out
Ortiz Miko	Out	Out	Out	Out	Out	F	IAS	Out	Out	Out	Out	Out	Out	Out
Pathé	Out	Out	Out	Out	Out	Out	Out	Out	Out	US	US	US	F	F
Pechiney	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	US	US	US	US	US	US
Pinault Printemps-Redoute (Pinault)	Out	Out	Out	IAS	IAS	F	F	F	F	F	F	F	F	F
PSA-Peugeot Citroën	US	US	US	US	US	US	US	US	US	US	US	US	US	US

(continued on next page)



Table 2 (continued)

Companies	1985	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Publicis	F	<b>IP</b>	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP	IP	<b>F</b>
Rémy Cointreau	Out	Out	Out	Out	Out	Out	Out	Out	Out	<b>IAS</b>	IAS	IAS	IAS	<b>F</b>
Renault	IP	<b>IAS</b>	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS
Saint-Gobain	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	<b>F</b>	F
Saint-Louis	F	<b>IAS</b>	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	<b>Out</b>	Out	Out	Out
Sanofi-Synthélabo (Sanofi)	Out	Out	Out	F	F	F	<b>IP</b>	IP	IP	<b>F</b>	F	F	F	F
Schneider Electric (Schneider)	F	F	<b>IAS</b>	IAS	IAS	IAS	IAS	<b>IP</b>	<b>F</b>	<b>US</b>	US	US	US	US
Seb	IP	<b>US</b>	US	US	US	US	US	US	US	US	US	US	US	<b>F</b>
Technip	Out	Out	Out	Out	Out	F	F	<b>IAS</b>	IAS	IAS	IAS	IAS	IAS	<b>F</b>
Telemecanique	Out	IP	IP	<b>IAS</b>	IAS	<b>Out</b>	Out	Out	Out	Out	Out	Out	Out	Out
Thomson-CSF (Thomson)	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	<b>F</b>	F	F
Total	F	<b>IAS</b>	IAS	IAS	IAS	IAS	IAS	IAS	<b>F</b>	F	F	F	Out	Out
Total Fina Elf (Elf)	US	<b>IP</b>	IP	IP	IP	<b>US</b>	US	US	US	US	US	US	US	US
Usinor (Usinor Sacilor)	F	F	F	F	<b>IAS</b>	IAS	IAS	IAS	IAS	IAS	IAS	IAS	<b>F</b>	F
Valéo	F	F	<b>IAS</b>	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS	IAS

F=French standards, IP=international principles, IAS=international accounting standards, US=U.S. GAAP, Out=excluded from the sample.

Bold characters=change of standard (year of change).

Bold, italic characters=first inclusion or departure from the sample with alternative standards.

This table includes *only* companies in the sample that have at least 1 year with a non-“F.”

Table 3  
Basic statistics in value

Years	IASC	International principles	“International” total	U.S. GAAP	Total companies	Total sample
	(1)	(2)	(3)=(1)+(2)	(4)	(5)=(3)+(4)	(6)
1985	4	4	8	8	16	100
1988	12	7	19	8	27	100
1989	18	7	25	8	33	100
1990	21	6	27	8	35	100
1991	23	6	29	8	37	100
1992	22	5	27	9	36	100
1993	23	5	28	9	37	100
1994	21	7	28	9	37	100
1995	19	5	24	10	34	100
1996	21	4	25	14	39	100
1997	21	3	24	15	39	100
1998	17	3	20	18	38	100
1999	9	2	11	18	29	100
2000	5	1	6	15	21	100

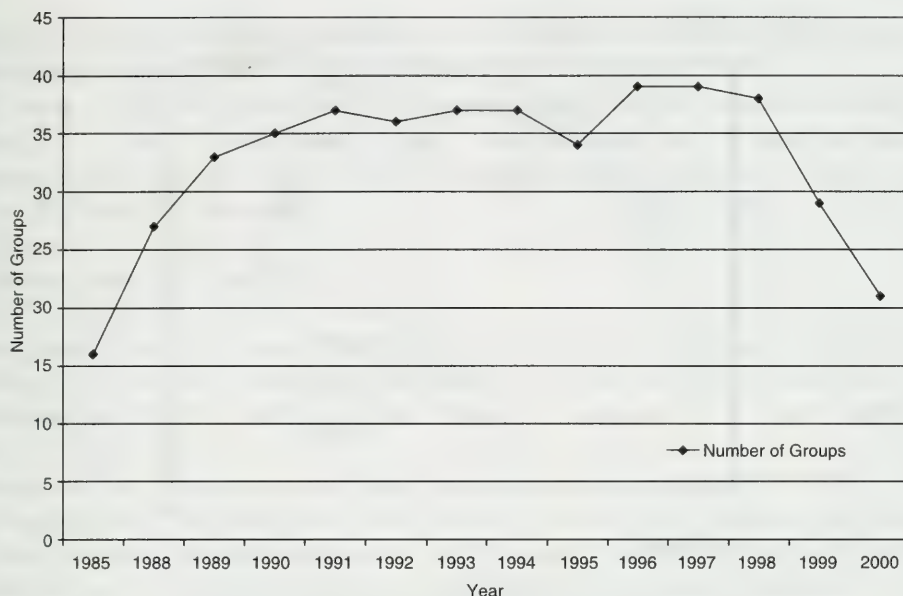


Fig. 1. Evolution of the number of “alternative” references.

### 3.3. Statistical results

Fig. 1 below shows changes in the number of groups using alternative standards during the period.

The graph above does not show a clear increase in the behavior in question. From 1985 to 1991, a rising number of French companies in our sample opted for alternative accounting standards. However, this number then stagnated and has even declined since.

The statistical test (linear regression) confirms this observation: the  $R^2$  of our linear regression model is only .046 with a significance level of .462.

We therefore reject H: Among the 100 largest industrial and commercial companies in France, although the number of French companies referring to alternative accounting standards increased in the late eighties, the number subsequently stagnated at between 30% and 40% before falling to only 21% in 2000.

In this case, a quadratic regression model, with  $R^2$  of .802 and significance level of .000 (see Fig. 2), would be more suitable to describe this development.

## 4. Analysis and interpretation

The results we obtained here are rather surprising since they (appear to) contradict existing literature. In this section, we will try to reach an in-depth understanding of this situation by using an analytic approach. First of all, we note that among companies using

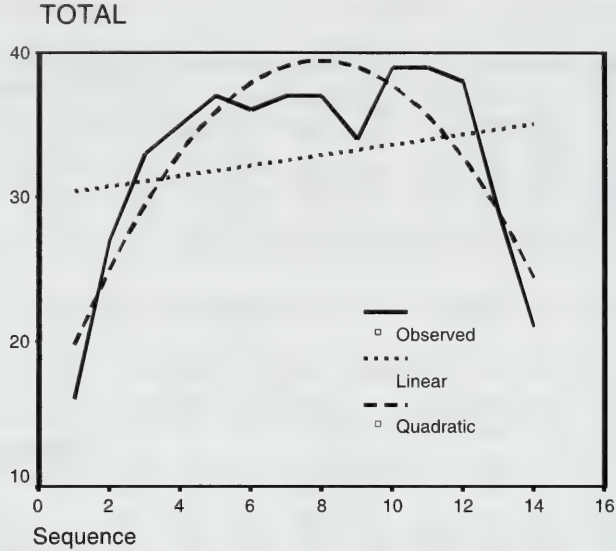


Fig. 2. Comparison of the linear and quadratic regression.

alternative standards, the trends are different for those preferring IAS/international principles and those choosing U.S. GAAP. Columns No. (3) and (4) in Table 3 and Fig. 3 show this difference.

We analyzed these two trends with a simple regression over time. The change in the number of companies choosing U.S. GAAP from 1985 to 2000 is statistically significant

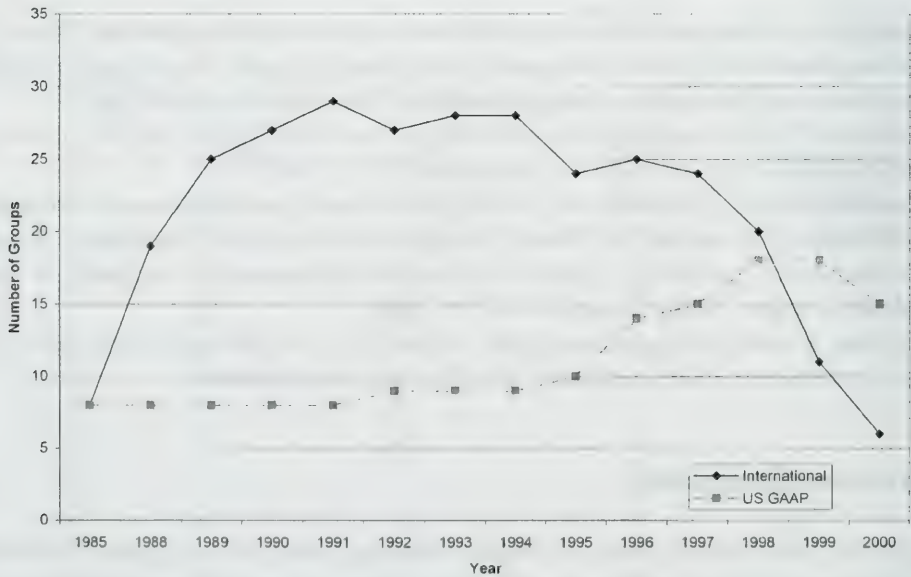


Fig. 3. “International” versus U.S. standards.



( $R^2=.779$ , significance=.000) but the change in the number of “international” adopters is not ( $R^2=.062$ , significance=.392).

The reality is that after a period of stagnation before 1995, the number of French groups choosing U.S. GAAP has increased steadily; while the number of those preferring IAS/international principles increased from the beginning of our observation period to reach a peak in 1994 and then decreased.

#### *4.1. Turning point of 1994–1995*

The years 1994–1995 were a real turning point for developments in both subgroups, in terms of both the international situation, i.e., the advances made and setback suffered in the IASC’s work, and the domestic situation for French national regulations.

During its first few years, the IASC had little impact on countries with significant securities markets. There were two main reasons for this: first, at that time, the existing IAS required only minimal disclosures and allowed multiple options, including those accepted in the United States and the United Kingdom. Second, international accounting harmonization was not an important issue in most major financial markets.

In January 1989, the IASC took an important initiative in publishing E32, “Comparability of Financial Statements,” with the aim of eliminating 23 optional treatments allowed by 13 IAS. This soon attracted the attention of IOSCO, and the result was a joint project launched by the two bodies in 1993. Through this project, the IASC sought endorsement by the IOSCO of a set of core accounting standards. Once endorsed, these standards would be submitted for the approval of national regulators with a view to facilitating cross-border offerings and listings by multinational issuers. However, the IASC suffered an embarrassing setback in 1994. Contrary to earlier indications that its intention was to judge the standards in stages, the IOSCO announced that it was putting off endorsement of any further standards until the entire core set of 24 standards was completed to its satisfaction.

As far as French groups are concerned, from 1985 to 1992, the choice of IASC or international principles did not generate any major change in accounting principles, given the options included in the French Law of 1985 and the IAS. There was an aspiration among French groups to refer to an international set of standards in order to compare results more easily with foreign groups. Till 1991, there was a clear trend in favor of IASC or international principles. In 1993, the IASC published a first group of revised standards: IAS 2, 8, 9, 11, 16, 18, 19, 21, 22, and 23. These standards were applicable after 1 January 1995. Each standard includes only one benchmark treatment, with the exception of some standards allowing one alternative treatment.

Until the publication of the revised standards, only rarely did a divergence exist that could prevent a French group from adopting IAS. The revision of IAS reduced this flexibility.

This situation may explain the stability observed between 1992 and 1994. In 1995, as we mentioned previously, the COB forbade French companies from adopting inter-

national or foreign standards if the rules were not compatible with the French rules. This led to a sharp increase in the exceptions to the sets of standards adopted (U.S. or IASC). This increase also appears to be linked to the implementation in 1995 of the revised IAS.

The behavior of French groups in these circumstances followed economic reasoning: because of the increasing costs involved in referring to IAS in 1995, some, like Total or Sanofi, stopped using IAS, while others preferred to shift to U.S. GAAP, considered more attractive to their U.S. investors (e.g., Schneider and Pechiney). This tallies with the situation for Swiss companies as described by Zeff (2001), who believes that one or more major Swiss companies might adopt U.S. GAAP if the IASB were to become more restrictive than the FASB.

#### *4.2. Significant drop in the number of companies choosing IAS from 1998 to 2000*

The most outstanding development during the observation period is the significant drop in the number of companies choosing IAS from 1998 to 2000. This drop can once again be explained by the international and national context.

In March 1999, the IASC published its interim standard on financial instruments, thereby substantially completing the key components of the core standards work program. In May 2000, the IOSCO decided to endorse IAS, while still allowing individual regulators to require certain supplementary treatments (Enevoldsen, 2000).

On 16 February 2000, the U.S. SEC unanimously approved and issued for public comment a concept release regarding the use of International Accounting Standards (IAS). This release affirmed the quality superiority of U.S. GAAP over IAS and urged IAS to converge towards American standards. For foreign companies listed in the United States but not adopting U.S. GAAP, a note reconciling income statement and balance sheet items to U.S. GAAP is still required by regulation of the U.S. SEC. American companies must follow U.S. GAAP. This refusal by the American authorities to accept IAS substantially reduced their usefulness for French companies wanting to attract American investors, and accordingly certain French groups abandoned IAS that had no impact on their market value (e.g., Aeropatie) (Bernheim, 2000).

Another reason for this decline is presumably the stricter policy now imposed by the IASC, under which a company can claim to be in accordance with IAS only when it respects the whole set of standards. The revised IAS 1, Presentation of Financial Statements, paragraph 11, states that: "Financial statements should not be described as complying with IAS unless they comply with all the requirements of each applicable Standard and each applicable interpretation of the [International Financial Reporting Interpretations Committee]" (IASC, 1997).

In 1999, eight groups ceased to refer to IAS or international principles, mentioning only French standards (Bongrain, Canal+, Cap Gemini, Eridania Béghin-Say, Lafarge, Lagardère, Saint-Gobain, Usinor). The same decision was made by six other firms in 2000: Air France, Essilor, Moulinex, Publicis, Rémy Cointreau, and Technip. The only



exception to this trend is the decision by EADS (Aerospatiale) to adopt IAS for the first time in 2000.

Finally, one other possible explanation lies in the fact that French companies hope that the initial application of international financial accounting standards (IFRS) will be made easier for “first-time adopters” than for companies, which already declared compliance with IAS.

#### 4.3. Future developments

Although it arose after our observation period, it is impossible to finish our paper without mentioning the recent accounting development in the European Union.

“In the mind of not a few Europeans, the IASC represented a fortress against U.S. accounting imperialism—a fear that U.S. GAAP would come to dominate world accounting” (Zeff, 1998). That is why the European countries have been participating actively in IASC task forces since the very beginning. Furthermore, in 1995, the European Commission announced that it was abandoning the idea of creating a European accounting standard-setting body and would support the IASC.<sup>4</sup> According to Flower (1997), the European Commission reasoned that if it was to permit the major European multinational companies to draw up their consolidated accounts using the IAS, then this would probably largely solve these companies’ problems occurring from their cross-border listings and would certainly check the movement towards U.S. GAAP.

The European Commission proposed in a communication dated 13 June 2000 to require all listed E.U. companies to prepare their consolidated financial statements in accordance with IAS from 2005 onwards at the latest. This communication was followed by a proposal for a regulation in February 2001 including the same requirement. The regulation has been officially adopted on June 7, 2002. To attain its objective, the E.U. has founded an *Accounting Regulatory Committee*, which will decide whether to endorse IAS on the basis of commission proposals, and a *European Financial Reporting Advisory Group* (EFRAG), which will provide technical expertise on the subject. Furthermore, the existing accounting directives are to be modernized in the course of 2002–2003 (European Commission, 2000, 2001).

This decision will certainly have a positive impact on accounting practices in France, at least concerning listed companies, since the IAS are widely viewed as reflecting a largely common-law approach of “transparent” timely disclosure (Ball, Kothari, & Robin, 2000). The survey by Salter and Roberts (1996) also confirmed this viewpoint. They found that the final outcome of the comparability project in 1989 was significantly associated with practices in countries with a culture that is high on Gray’s (1988) professionalism dimension, with auditors having considerable influence in the

<sup>4</sup> European Commission. (1995). *Accounting harmonization: A new strategy vis-à-vis international harmonization*. Communication from the Commission Internal Document, COM95 (508).



ultimate objective of financial-reporting practices and controlling entry into their profession. Those countries significantly associated with practices selected in the project were also relatively optimistic in their measurement practices and regulated their financial reporting system using a common law/precedent-based system rather than a code law system.

## **5. Limitations and directions for future research**

Several limitations to our survey should be pointed out. First, a certain number of groups declare that they comply with the IASC set of standards, or U.S. GAAP, then add that they do not apply certain specific standards. Companies rarely disclose what motivated them to adopt alternative standards. Their reasons, when mentioned, include the international nature of the group's activities (Accor, Danone), its international location (Chargeurs), the practices of the oil sector (Elf), the desire for accounting principles that are more suitable to the international context of the business and the type of shareholders (PSA-Peugeot Citroën), a group's important position in the North American market (Pechiney), cross-border listing (Compagnie Générale de Géophysique), and the need for principles, which facilitate comparability with other international engineering and building companies (Technip). Regarding a change in the alternative standards referred to or the return to French domestic standards, the only example of an explanation we found was by Bull. In its 2000 annual report, the company mentioned: "The adoption of generally accepted accounting policies in the United States of America as a standards base was abandoned at the December 31, 2000, year end, primarily for reasons of clarity of communication and due to the increasing complexity of retaining a dual standards base. This change did not have a material impact on the accounts. In effects, transactions potentially generating differences in accounting treatment under French and U.S. GAAP are on the whole limited and their impact on the 2000 financial statements is minor."

Second, comparison is sometimes difficult to assess and should be treated with caution because of changes in the sample. For example, in 1996, the number of groups referring to "alternative" standards has increased, but there has been a modification in the sample. With the same sample, the figure would have remained identical to the previous year (34, see Table 3).

But the major limitation of our study is that we only studied companies' own claims that they applied a certain set of accounting standards without investigating whether they actually follow the whole or only a part of the entire set. There is a possible gap in this field of research. The paper by Street and Bryant (2000) examines the extent to which the disclosure requirements of the IASC have been complied with or have been exceeded by companies claiming to use IAS. It showed that among companies claiming to use IAS, the real compliance with IASC-required disclosures is only 84% for those with U.S. listing or filing and 76% for those without U.S. listing or filing. For several standards, such as those concerning borrowing costs, financial reporting in hyperinflationary economies, or joint ventures, the degree of compliance is only slightly more than 50%. In his *International*

Accounting Standards Survey 2000, Cairns (2000) also studied various aspects of the financial reporting of 165 IAS companies: their approach to IAS and domestic GAAP, the level of compliance with IAS, IAS lite—exceptions from full compliance, audit reports on IAS financial statements, and audit opinions and IAS lite.

In future research, it would be interesting to look further into the question by identifying the fields that cause most of the divergencies between the requirements of IAS and/or U.S. GAAP and the accounting practices of French companies. It would also be useful to carry out the same study in other European countries for a better understanding of this harmonization issue at a European level.

## **6. Conclusion**

Our research studied the changes over the last 16 years in the choice to refer to a given set of accounting standards by large French companies. Our belief is that the main factor driving French firms to choose international or American standards is the requirement of capital market actors for more transparent accounting disclosure. Even in their study contesting the existence of an Anglo-Saxon accounting model, Alexander and Archer (2000) recognized that “the one characteristic that is common to the United States and the United Kingdom (and to other English-speaking countries), as well as to the Netherlands, is an expressed concern for the quality of accounting information from the perspective of capital market actors.” Ashbaugh (2001) also found in her study that non-U.S. firms were more likely to disclose IAS or U.S. GAAP financial information when their shares are traded on more equity markets.

We showed that although there is no clear trend covering the whole group of companies choosing alternative references during the observation period, the number of firms preferring U.S. GAAP has increased since 1995, which confirms the change in the power balance between the IASC and the SEC-FASB. Our analysis has also shown that thanks to the flexibility of French regulations on consolidated accounts, French firms have the option to choose their set of accounting standards in order to suit their specific financing needs after a cost-benefit trade-off.

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**Appendix A. List of French groups included in the sample in 1999 (annual reports 1998)**

Accor	Club Méditerranée	L'Oréal	Saint-Gobain
Aérospatiale	Coflexip	Labinal	Sanofi
Air France	Communication &	Lafarge	Schneider
Alcatel	Systèmes	Lagardère	Seb
Alstom	Damart	Legrand	Seita
Altran technologies	Danone	Legris Industries	Sge
André	Dassault aviation	Lvmh	Sidel
Atos	Dassault systèmes	M6	Skis Rossignol
Bel	De Dietrich	Michelin	Snecma
Bic	Dmc	Moulinex	Sodexho
Bolloré	Dynaction	Norbert Dentressangle	Sommer Allibert
Bongrain	Eiffage	Pathé	Strafor Facom
Bouygues	Elf	Péchiney	Suez Lyonnaise des Eaux
Bull	Eramet	Pernod Ricard	Taittinger
Canal+	Eridania Béghin-Say	Pinault Printemps-	Technip
Cap Gemini	Essilor	Redoute	TF1
Carbone Lorraine	Faurecia	Plastic Omnium	Thomson-Csf
Carrefour	Fives-Lille	Primagaz	Thomson Multimédia
Casino	Framatome	Promodès	Total
Castorama	France Telecom	PSA-Peugeot Citroën	Usinor
Cea-Industrie	Galleries-Lafayette	Publicis	Valeo
Chargeurs	Geodis	Rémy Cointreau	Vallourec
Cie Générale de	Havas Advertising	Renault	Vivendi
Géophysique	Hermès	Rhône-Poulenc	Worms & Cie
Ciments Français	Imerys	Royal Canin	Zodiac
Clarins	L'Air Liquide	Sagem	

Source: L'information financière 1999: 100 groupes industriels et commerciaux, p. 673.

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# The regulatory framework for financial reporting and auditing in the United Kingdom: the present position and impending changes<sup>☆</sup>

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## Abstract

This paper provides an overview of the current regulatory framework for financial reporting and auditing in the United Kingdom. The framework remained stable for 10 years following significant reforms in 1990–1991. A further process of change is now taking place. These changes arise from three sources: refinements in the UK's regulatory framework, the European Commission's drive for a single capital market, and political interest in accounting regulation following the Enron collapse. The present position is explained and the future implications of recent and impending changes are considered.

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*Keywords:* Regulation; Financial reporting; Audit

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## 1. Introduction

After a relatively stable period of 10 years, the regulatory framework for financial reporting and auditing in the United Kingdom is going through a period of significant change. There are three principal things driving change: UK domestic law and regulation, EU law and regulation, and the impact of the Enron collapse accompanied by the break up of Andersen and the ensuing market turbulence. Those changes are in various stages of development and

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implementation. In this position paper we provide an overview of the current framework in the United Kingdom as of 31 January 2003, including the reforms announced by the UK Secretary of State on 29 January 2003. We first review recent and proposed changes which were initiated before the Enron collapse and then set out the present position for financial reporting and auditing, highlighting key developments over the last 10 years. Finally, we describe the outcome of the current politically motivated post-Enron reviews.

## **2. Recent and proposed changes to the UK framework**

### *2.1. UK domestic law and regulation*

Three changes to domestic law and regulation have already taken place. First, the London Stock Exchange, which was self-regulatory, is no longer the Listing Authority in the United Kingdom. This responsibility was taken over by UK Listing Authority (UKLA), a body which is part of the Financial Services Authority (FSA), a government agency. Second, a new private sector regulator, the Accountancy Foundation, has recently been set up by the UK accountancy professional bodies to provide independent oversight of their regulatory activities, auditing and ethical standards, and conduct disciplinary investigations. Third, new regulations were issued in July 2002 with respect to directors' remuneration disclosures (Statutory Instrument, 2002).<sup>1</sup>

A further major domestic change in progress but not yet completed is a rewrite of UK Company Law.<sup>2</sup> A government white paper "Modernising Company Law (2002)," was issued in July for final consultation;<sup>3</sup> and a new Companies Act is expected within the next 2 years. In addition to the white paper, the FSA also issued discussion papers about investment research (FSA, 2002a) and about proposals to reform the UK Listing Rules (FSA, 2002b), which have remained fundamentally unchanged for 10 years.

### *2.2. European Commission*

Significant changes are also being introduced by the European Commission as part of the initiative to strengthen the capital markets in the European Union by creating common standards of listing and reporting for all member states. A regulation was recently passed by the European Union Council of Ministers that all listed companies should adopt International

<sup>1</sup> These regulations require quoted companies to prepare, gain shareholder approval for, and file on public record an audited directors' remuneration report. This applies to year-ends after 31 December 2002.

<sup>2</sup> The principal recommendations cover: simplification of the regime for small companies, shortening of the filing period for all companies, codification in law of the responsibilities and duties of directors, greater transparency in the behaviour of institutional investors, a compulsory Operating and Financial Review for all listed and other large companies, recommendations for tightening criminal law to facilitate pursuing wrongdoing (including a criminal offence of failing to disclose information to an auditor), and a rationalisation of the standard setting and legal requirements for financial reporting under a successor body to the ASB.

<sup>3</sup> The overall consultation process for the Company Law Review has taken place over 3 years.

Accounting Standards (IAS)<sup>4</sup> for their group accounts by 2005 (IASB, 2002). It is also hoped that the audit of these groups should follow International Standards of Auditing (ISAs) from the same date<sup>5</sup> (Co-ordinating Group on Auditing and Accounting Issues [CGAA], 2002). A further development is the planned introduction of a common form of prospectus and annual registration document for member states, to be accepted by all capital markets throughout the European Commission (FSA, 2002b).

The European Commission also issued a Recommendation on auditors' independence in May 2002 (EC, 2002). Adoption of this Recommendation is not compulsory for member states, but its progress will be reviewed by the European Commission in 3 years. In the post-Enron environment in the United Kingdom, the Council of the Institute of Chartered Accountants in England and Wales (ICAEW), which regulates the auditors of most public interest entities in the United Kingdom, adopted this recommendation in June 2002, to be regarded as best practice from 1 October 2002 until being written formally into the regulatory framework.<sup>6</sup>

### 2.3. *The Enron collapse*

Following the collapse of Enron and the turbulence in the UK markets that followed, the Chancellor of the Exchequer<sup>7</sup> ordered a review of financial regulation in the United Kingdom, covering auditor independence, corporate governance, regulation of the accountancy profession, financial reporting and auditing standards, company law reform and accountability of audit firms. This review has been taken on by a combined group of regulators,<sup>8</sup> and an interim report was issued with a designated work program in July 2002 (CGAA, 2002). In addition to this, the House of Commons Treasury Committee<sup>9</sup> is

<sup>4</sup> The International Accounting Standards Board (IASB) has redesignated its standards International Financial Reporting Standards (IFRS) but this term is not yet in common parlance. In this paper, therefore, we have continued to use the term IAS.

<sup>5</sup> The EC is working with member states to facilitate the adoption of ISAs throughout the EU by 2005. As yet there are no agreed auditing standards across the EU.

<sup>6</sup> The major changes to the current UK framework which this Recommendation will bring are further restrictions on the provision of certain nonaudit services, mainly financial information technology services and internal audit, a requirement for *all* key audit principals to rotate every 7 years (not just the engagement partner) and a ban on key audit principals taking up management positions with a client within 2 years of leaving the firm. Definitive guidance on UK implementation of the Recommendation was approved by the ICAEW Council in October 2002. The implementation date was deferred to year-ends beginning on or after 1 November 2002 with the exception of the provisions for partner rotation. These were amended in response to the CGAA's interim report (CGAA, 2002) to make the rotation period 5 years for the audit engagement partner, and the implementation was deferred until year-ends beginning after 1 January 2003, to give firms time to make the appropriate arrangements.

<sup>7</sup> The Chancellor of the Exchequer is the second most powerful politician in the United Kingdom. He heads the Treasury, which is responsible for the state of the UK economy.

<sup>8</sup> The membership of this group comprises two senior politicians and representatives of the key regulatory bodies, being the DTI, the Financial Services Authority, the Financial Reporting Council, the Accounting Standards Board, the Accountancy Foundation Review Board, and the Auditing Practices Board.

<sup>9</sup> The House of Commons Treasury Committee is an independent committee of back-bench Members of Parliament. Such committees can make recommendations to government but do not have executive authority to force implementation of their proposals.



conducting its own inquiry into the arrangements for the regulation of public limited companies (PLCs) in the United Kingdom. Its first report was also issued in July 2002 (House of Commons Treasury Committee, 2002). Key concerns relate to auditor rotation, nonaudit services, the responsibilities of audit committees, ensuring quality in audit and financial reporting, the fragmentation of regulatory responsibilities, and the implications for competition of there now being just four major audit firms in the United Kingdom. A final concern for the United Kingdom is the full extra-territorial impact of the US Sarbanes/Oxley Act (One Hundred Seventh Congress of the United States of America, 2002). This has yet to be resolved, and discussions continue between regulators in both countries. The concern for UK companies with a US listing and for UK auditors of subsidiaries of US companies is the cost and disruption of having to comply with two different regulatory regimes in their domestic territory.

The rest of this paper comprises six more sections. Two sections set out the UK framework for financial reporting and auditing before any changes are introduced. These are followed by a description of the changes already planned before the Enron collapse. We then summarize the UK government's interim statement on further reform post-Enron and follow this with a description of the final package of reforms announced on 29 January 2003 and a short conclusion.

### **3. The regulatory framework for financial reporting in the United Kingdom**

#### *3.1. UK domestic companies*

The Department of Trade and Industry (DTI) is responsible for overall policy with respect to company law, including financial reporting and auditing in the United Kingdom. As well as UK domestic provisions, European Union (EU) Directives are introduced through company law. There are approximately 1.4 million active registered domestic companies, of which 2175 are listed on the London Stock Exchange.<sup>10</sup>

All UK domestic companies are required to comply with UK company law, a fundamental principle of which is that all companies, regardless of size or ownership structure, are subject to the same legal regime; i.e., "one size fits all." The legislation covers a wide range of corporate activity and is laid down in Acts of Parliament, mainly various Companies Acts. Extra provisions apply as appropriate to special category companies, e.g., listed companies, banks, insurance companies. These additional provisions may be contained in company law or other forms of regulation.

All UK companies are required by company law to prepare financial statements for their shareholders. These accounts are the legal responsibility of the directors and must comply with UK GAAP and company law. The 1985 Companies Act includes a requirement for accounts to show a true and fair view and comply with law and accounting standards. The true and fair

<sup>10</sup> All the data about listed companies in this paper were provided by the UKLA on 8 March 2002.



view can be used, where it can be justified, to override other legal requirements and accounting standards.<sup>11</sup>

All UK companies are required to file their financial statements on public record at Companies House, a DTI agency. With the exception of very small companies, their accounts must be audited by a UK registered auditor.<sup>12</sup> Small private (i.e. not public) companies or groups<sup>13</sup> are permitted to file abbreviated accounts (although this may change with the revised Companies Act), which contain very little information, but must still prepare full accounts for their shareholders. Ninety-five percent of all UK companies fall into this category. In order to relieve the preparers of small company accounts from having to deal with the increasing number and complexity of accounting standards, a single standard, the Financial Reporting Standard for Small Entities (FRSSE), which is based on existing UK GAAP, has been developed by the UK Accounting Standards Board (ASB) for use by companies which qualify for the small company filing exemptions. The exemptions do not apply to Public Limited Companies (PLCs)<sup>14</sup> or other special category companies. Subsidiary companies must also prepare and file legal accounts. Private limited companies must file their financial statements within 10 months of the year-end. PLCs must file within 7 months.<sup>15</sup> There are accumulating fines for directors who fail to file their accounts on time.

The DTI also has wide powers to investigate companies, whether listed or unlisted, where fraud or misconduct is suspected, where shareholders have been denied reasonable information or where there is a public interest justification. The Secretary of State may take action to stop a company trading, disqualify directors for periods of up to 15 years, and prosecute offenders. Companies and directors may also be warned and instructed to rectify faults (DTI, 1999).

UK accounting requirements are currently found in both company law and accounting standards. Until 1991 the setting of accounting standards was delegated to the accountancy profession. Accounting standards were flexible and creative accounting was rife (Griffith, 1996). Furthermore, there was no effective enforcement mechanism against directors or

<sup>11</sup> S226 (5) 1985 Companies Act reads 'If in special circumstances compliance with any of those provisions is inconsistent with the requirement to give a true and fair view, the directors shall depart from that provision to the extent necessary to give a true and fair view. Particulars of any such departure, the reasons for it and its effect shall be given in a note to the accounts'.

<sup>12</sup> Companies or groups which qualify for the small company filing exemptions and which do not exceed two of the following criteria are exempt from audit: turnover: £1 m; balance sheet total: £1.4 m; employees: 50. This change was introduced in May 2000. The previous level for turnover was £350,000. The recently issued White Paper "Modernising Company Law (2002)" indicates no intention of changing this level of exemption.

<sup>13</sup> Companies or groups which do not exceed two or more of the following criteria qualify for these public filing exemptions: turnover: £2.8 m; balance sheet total: £1.4 m; average number of employees: 50. "Modernising Company Law (2002)" indicates an intention to simplify reporting for small companies.

<sup>14</sup> A PLC must have a minimum authorized capital of £50,000 and may offer its shares to the public. Private companies may not offer shares to the public and the minimum authorized capital requirement does not apply.

<sup>15</sup> Listed companies are required to produce accounts on a faster timetable to comply with the UKLA rules. Full accounts must be produced within 6 months of the year-end, but preliminary announcements obviously precede the issue of the accounts. "Modernizing Company Law" indicates an intention to shorten the filing periods for all companies.

auditors who lent their names to creative accounting practices, or even those whose accounts failed to comply with the existing standards. Regulators only became interested in cases of corporate collapse. As a result, UK financial reporting and auditing lost credibility.

In order to restore credibility in UK accounting, after a lengthy consultation process instigated by the DTI (Combined Committee of Accounting Bodies [CCAB], 1988), the Financial Reporting Council (FRC) was set up. The FRC is an independent private sector body funded by the accountancy profession, the DTI and City institutions. It has a small permanent staff, and its committees are served mainly by volunteers representing various stakeholder groups. The FRC has three subsidiary bodies: the Accounting Standards Board (ASB), which has a full-time chair; the Urgent Issues Task Force (UITF), which opines on emerging accounting issues for which no standards exist; and the Financial Reporting Review Panel (FRRP) which is responsible for enforcement.

The FRRP was an innovation in the UK framework. Its remit covers the accounts of listed companies, PLCs and large private companies. (The majority of cases have been listed companies.) The FRRP is a reactive body and takes up cases arising from complaints, referrals from other regulators or press reports. Its primary objective is to secure remedial action, in the form of restatement or correction where accounts are found to be defective. It has legal authority to apply to the courts to force remedial action on directors if they refuse to correct deficiencies voluntarily. In the first 10 years of its existence, no such applications have been made to the courts; all defects have been voluntarily remedied. When remedial action is agreed upon by the directors, the FRRP issues a notice to the financial press and, if the company is listed, the Regulatory News Service (RNS), explaining the defect and the remedial action taken. The FRRP has no authority over auditors, but auditors are encouraged to attend when the Panel meets with directors to discuss problems. When a defect is found, the FRRP refers the matter to the auditors' regulatory body if an unqualified audit report was attached to the defective accounts. Disciplinary action has been taken against auditors in some of these cases. Fearnley, Hines, McBride, and Brandt (2000) provide a review of the first 10 years of the FRRP's activity.

### 3.2. *UK domestic listed companies*

Companies whose shares or other securities are listed on the London Stock Exchange are required to comply with the regulations issued by the UKLA (FSA, 2000).<sup>16</sup> On 1 May 2000, the role of the London Stock Exchange as the listing authority for the United Kingdom was transferred to the FSA, a company limited by guarantee, accountable to the UK Government Treasury,<sup>17</sup> and funded by regulatory fees. The UKLA is a division of the FSA.

<sup>16</sup> The UK Listing Rules and interpretation guidance were first issued by the UKLA in May 2000. Regular updates are issued.

<sup>17</sup> The FSA was established in order to rationalize the regulation of all financial institutions and financial advisors in the UK. It took its name in October 1997, but it was not until 1 December 2001 that the final stage of the amalgamation of all the regulatory bodies was legally achieved, under the provisions of the Financial Services and Markets Act 2000. The penalty regime applies to breaches of the financial services regulations and breaches of the UKLA Listing Rules. Included in these provisions were powers to impose fines and other penalties on directors for market abuse and other forms of misconduct.



A key guiding principle of the UKLA is to balance access to the market with an appropriate level of protection for investors. The UK Listing Rules<sup>18</sup> require annual reports and accounts to be prepared in accordance with the issuers' national law<sup>19</sup> and in all material respects in accordance with UK GAAP, US GAAP, or IAS. (Countries within the EU may file under their own domestic GAAP.) Accounts must be independently audited under recognized auditing standards (UK, US, or ISA). Group accounts must be prepared where there are subsidiary undertakings and published as soon as possible after the accounts are approved or, at the latest, 6 months after the year-end. As all UK domestic companies have to comply with UK Company Law, all their accounts are prepared in accordance with UK GAAP and audited under UK auditing standards by a UK registered auditor. The Listing Rules include additional requirements for domestic companies and others which are mandatory under EU Directives. The additional disclosures are mainly concerned with information about directors and corporate governance. These include directors' remuneration, interests in shares and contracts and changes to these interests, related party transactions, dividends and interest waived, service contracts and incentive schemes. Additional historical data are required, and each company must disclose the extent to which it has complied with the provisions of the Combined Code for Corporate Governance (FSA, 2000).<sup>20</sup> The Listing Rules also cover procedures and requirements surrounding the issue of preliminary announcements, half-yearly statements,<sup>21</sup> and other communications to shareholders. The UKLA supervises and approves initial public offerings and other capital raising activities. Detailed procedures for this are set out in the Listing Rules and accompanying guidelines. Once their securities are listed, copies of annual accounts and all other documents issued to shareholders must be provided to the UKLA, where they are kept on public record in various forms (mainly electronic) for varying periods of time, and may be accessed through the RNS.<sup>22</sup> Key accounting data are currently passed to a commercial organization that stores it in a database for use by the UKLA. Commercial users of this database are charged a fee. There is no comprehensive system that stores each company's history, such as the SEC's Edgar system. The whole area of information storing and retention is under review by the UKLA.

Before UK securities are admitted to listing, the documents are carefully vetted following laid down procedures. Checks are performed on a sample of regular filings, which mainly

<sup>18</sup> Detailed regulations for financial information are contained in Chapter 12 of the UK Listing Rules.

<sup>19</sup> This regulation forces all UK domestic companies to file under UK GAAP.

<sup>20</sup> The Combined Code for Corporate Governance was issued in 1998. It combines codes for corporate governance and directors' remuneration disclosures which were developed in the United Kingdom between 1992 and 1998. It was incorporated into UK Stock Exchange Listing Rules for year-ends 31 December 1998 onwards and is attached to the UK Listing Rules (2000) but is not part of them. The Combined Code does not currently form part of UK Company Law.

<sup>21</sup> Quarterly reporting is not required for most companies on the UK Stock Exchange. Certain innovative high growth companies, whose earnings are prospective and which are without a 3-year track record, may be required to report quarterly under Chapter 25 of the UK Listing Rules.

<sup>22</sup> Up to April 2002, the Stock Exchange has a monopoly of the RNS. Other service providers have been recognized by the FSA from this date (FSA website, visited 8 March 2002).



focus on compliance with the Listing Rules, as the UKLA is not primarily responsible for compliance with company law and accounting standards. An overview check is carried out on this information. Where the UKLA's overview checks identify deficiencies in accounting, or deficiencies are drawn to its attention, the UKLA refers the company accounts to the FRRP. Pre-clearance advice may be given by the FSA on compliance with the Listing Rules, but not on compliance with company law and accounting standards. Regulatory pre-clearance on company law and accounting standards is currently not available in the United Kingdom. When a breach of the Listing Rules is identified, the first priority of the UKLA is to correct the breach.

On 1 December 2001, the UKLA acquired wide powers (see footnote 17) to pursue directors, former directors, issuers or sponsors for market abuse, insider dealing<sup>23</sup> or other forms of dishonesty.<sup>24</sup> The UKLA's primary target for enforcement is the company, as directors cannot be pursued unless a breach of the Listing Rules is established. In addition to suspension or delisting, which may be damaging to the interests of investors, private warnings may be given, which remain part of a disciplinary record. Other possible actions include public censure of companies and individual directors, fines, and restatement of defective information. Where there is evidence of misleading accounting information, the UKLA and the DTI are expected to work together to decide how best to pursue the offenders.

The Listing Rules were taken over from the Stock Exchange and were subject to some amendment before reissue by the UKLA. A comprehensive review of the Listing Rules has been announced (FSA, 2002b). Further changes to the Listing Rules may be introduced. It is unclear how wide-ranging such changes may be. The chairman of the FSA has already caused some consternation by expressing a view that it may be appropriate for the Listing Rules to pronounce on matters concerning auditors (Accountancy Age, 2002), an area previously believed to be within the remit of the DTI.

### 3.3. *Overseas registrants*<sup>25</sup>

In all there are 708 overseas companies with a primary listing on the London Stock Exchange.<sup>26</sup> Of these, 500 are specialist debt issuers, and 160 have a primary listing for equity. The debt issuers may have a primary listing for their equity on another market. The market for Eurobonds is mainly in London or Luxembourg, and this may explain the relatively high number of specialist debt issuers. There are 370 overseas companies with a secondary listing,

<sup>23</sup> This was previously the responsibility of the DTI.

<sup>24</sup> The London Stock Exchange had powers to refuse listing, suspend, or delist, but not to take legal action against directors. It could issue public reprimands. It was a private sector body but was ultimately accountable to the Treasury.

<sup>25</sup> Detailed regulations for overseas registrants are contained in Chapter 17 of the UK Listing Rules.

<sup>26</sup> An overseas company, which has a branch or trades in the United Kingdom, is classed as an *oversea company* under UK company law and is required to comply with the Companies Acts, subject to defined exemptions.

of which 213 have an equity listing. Accounting information may be provided by registrants under UK GAAP, US GAAP, or IAS without reconciliation, but the accounts must comply with domestic law in the registrant's country of origin. Companies resident in the EU may file under their own domestic GAAP. UKLA has discretion to accept information prepared under other accounting regimes and is more inclined to do this where the security is specialized debt rather than equity.

Where a primary listing is sought by an overseas company and there is no listing elsewhere, registrants must comply with UK regulatory requirements, but they also may prepare accounts under UK GAAP, US GAAP, or IAS. Such a company must also comply with the legal requirements of its country of origin. Compliance with the Combined Code is not required for any overseas company. There are relatively few overseas companies with a sole primary listing in London,<sup>27</sup> as the more accepted route is to set up a UK resident company and seek the listing through a UK resident vehicle.

Overseas registrants with a dual primary listing—i.e., where securities are actively traded on more than one country's exchanges—are expected to comply with the highest standards of reporting of both countries' regulatory requirements.

Where the level of trading and interest in the securities issued by overseas companies is limited to knowledgeable investors (e.g., financial institutions), a 'light touch' or caveat emptor approach may be adopted for specialized securities (e.g., bonds and other forms of secured debt) once the security has been accepted for listing. In some circumstances, limited information in a language other than English may be accepted. Very few complaints or problems currently emerge from this market sector despite its size.

Where there are concerns about an application for listing from an overseas registrant, the application is refused. The extent of monitoring of an application can vary according to the type of security and the rigor of the overseas lead regulator. Where problems subsequently emerge, the UKLA's approach is initially the same as for a UK company (i.e., to remedy the defects expeditiously and keep the market informed). The approach may differ according to the nature of the security and the interests of the investor. If the listing is secondary, the UKLA will normally approach the lead regulator if further action against the company or the directors is under consideration. In the case of a primary listing, the UKLA will take the action itself but will liaise with regulators in other countries where the company had securities listed. Only in serious and very urgent cases will unilateral action be contemplated. The UKLA can only pursue individuals for breaches of the UK Listing Rules.

There can be some difficulties in pursuing directors of overseas companies for wrongdoing if they are not resident in the United Kingdom. The same problem applies to overseas directors of UK or overseas companies (see footnote 26) whom the DTI may wish to pursue for breaches of UK Company Law.

<sup>27</sup> Anecdotal evidence from practitioners and regulators suggests that overseas resident companies seeking a primary listing in the United Kingdom without any listing in their own country would be viewed with some suspicion by the markets.



#### 4. The regulatory framework for audit

##### 4.1. *The regime for audit regulation and standard setting*

Until 1991, holders of a legally recognized accounting qualification and a practicing certificate issued by a recognized professional body were entitled to carry out audits.<sup>28</sup> This situation was changed by the EU 8th Directive, which was incorporated into UK Company Law in the 1989 Companies Act. One objective of this directive was to harmonize audit qualifications throughout the EU in order to achieve mutual recognition in all member states. Auditors in all member states are licensed and a public register maintained in each country. Because of the loss of confidence in financial reporting and auditing which had arisen in the UK in the 1980s, the DTI took the opportunity to introduce a monitoring procedure for auditors, which went beyond the requirements of the Directive. After a consultation process (DTI, 1986), it was agreed that the DTI would delegate responsibility to the recognized professional bodies for licensing, monitoring, and disciplining auditors. They would also maintain the public audit register. From the outset, the process was fragmented. ICAEW, Institute of Chartered Accountants of Scotland (ICAS), and Institute of Chartered Accountants in Ireland (ICAI) combined resources, developed regulations for approval by the DTI, and set up a monitoring unit which would inspect all their practices. They also set up a Joint Ethics Committee. The Association of Chartered Certified Accountants (ACCA) developed separate regulations and its own ethical rules. The DTI approved both sets of regulations and the licensing and monitoring regimes started in 1991. Each year the ACCA and the Institutes of Chartered Accountants report to the DTI on their regulatory activities.

Compliance with this new regime imposed considerable cost on small audit firms and small companies. As a result, exemptions from the audit requirement were introduced for smaller companies (see footnotes 12 and 13).

Professional bodies can only take action against their own members; therefore, although the three Institutes of Chartered Accountants had joined forces to monitor audit practices, each body still takes action separately against its own members and its own registered firms. This problem of fragmentation had been recognized some years earlier with respect to major public interest investigations, where the accountants involved could be members of different bodies and there was a problem of a duplicated and fragmented investigation. In order to expedite investigations into major public interest cases where accountants involved could be members of more than one professional body, a separate scheme, the Joint Disciplinary Scheme (JDS) was set up in 1979 by ICAEW, ICAS, and ACCA. The ACCA eventually withdrew from the JDS because, despite contributing to the costs, none of its members had ever been under investigation. Despite the fact of the fragmentation problem being recognized, the professional bodies were still allowed by the DTI to continue dealing individually with their own members and registered firms as well as developing two monitoring regimes and two sets of ethical standards. The law and regulations make no distinction between the auditors of listed

<sup>28</sup> These bodies are: ICAEW, ICAS, ICAI, and ACCA.



companies and the auditors of small companies. The only difference is the frequency of monitoring visits (CGAA, 2002).

Auditing standards, however, apply to all auditors and are set by the Auditing Practices Board (APB). Since 1991, the Board's membership comprised 50% auditors and 50% nonauditors. Nonauditors may be qualified accountants. This is now changing to 60% nonauditors and 40% auditors.<sup>29</sup>

#### 4.2. Market structure

For the year-ended 31 December 2000, there were 8626 firms of auditors registered with ICAEW, ICAS, and ICAI (ICAEW, 2001),<sup>30</sup> 88% of which have four partners or less. One hundred and two firms audit listed companies. Seventy-six percent of listed company audits are carried out by 16 firms with more than 51 partners. The 100 largest listed companies in the United Kingdom (generally referred to as the FTSE 100, being the top companies as listed by the *Financial Times*) are audited by Big Five (now Big Four) firms.<sup>31</sup> ICAEW regulates all the major audit firms in the United Kingdom.

Also for the year-ended 31 December 2000, ACCA has 3242 'Registered Auditor Entities' (ACCA, 2001). This number duplicates some of the firms registered with the other bodies, as it includes firms which ACCA does not regulate.<sup>32</sup> However, there are in the UK over 10,000 firms of registered auditors. It is unlikely that ACCA regulates any listed company auditors, but confirmation of this information is not easily obtained.

The figures quoted are unlikely to reflect the impact on small audit firms of the DTI's decision to raise the audit exemption level to £1 m turnover in May 2000 (see footnotes 12 and 13). It is possible that some smaller firms will no longer continue their audit registration.

#### 4.3. Background to the establishment of the Accountancy Foundation

By 1996, some problems were emerging for the accountancy bodies' regulatory activities, concerning small practitioners, disciplinary procedures, and the JDS.

The introduction of audit regulation, while being generally recognized as improving standards of work (Bidmead, 1992), was not popular with many small practitioners, who did not like the monitoring visits and objected to being fined by their professional body for regulatory breaches. It was less of a problem for the large firms (Lindsell, 1993), who also saw the alternative of direct regulation by the state as less attractive. There was much debate about feasibility of a professional body (particularly the ICAEW) taking on the dual role of a members' organisation and as a regulator on behalf of the state.

<sup>29</sup> Under the rules of the Accountancy Foundation, the reformed APB has 60% of its member's nonauditors.

<sup>30</sup> As the three bodies, ICAEW, ICAS, and ICAI submit a joint report, the data have been taken from the ICAEW report. It could equally have been taken from the ICAS or ICAI reports.

<sup>31</sup> From 1 August 2002, Andersen UK has joined with Deloitte and Touche UK.

<sup>32</sup> Where an audit firm has partners who are members of ACCA and the other bodies, this firm is included in the ACCA's numbers although regulated by another body.

The DTI did not approve of the ACCA's withdrawal from the JDS because this left the scheme no longer representative of all UK auditing bodies. A further problem arose for the ICAEW: there was public outrage because an ICAEW member, who had resigned his post as a government minister on suspicion of corruption, was considered to have been leniently treated by the ICAEW disciplinary committee.<sup>33</sup> There was also concern about the independence of the APB as it was felt to be too close to the profession. (The APB actually resided in the ICAEW headquarters in London.) The position of the professional bodies as regulators was believed to be under threat, and the bodies, particularly the ICAEW which regulates the large firms, were keen to retain it. A scheme for an independent body to oversee the professional bodies' regulatory and disciplinary activities was initiated by the ICAEW. This body would also take ownership of the APB and a replacement body for the JDS would be established. It was realised, however, that to be credible, an independent oversight body would have to include all the UK accountancy professional bodies. The intention of the new arrangement was for the professional bodies to demonstrate both to the public and to their own members that they were working together and their regulatory activities were both fair and effective.

A consultation paper was issued by the DTI (1998) and agreement was reached in 1999 about the structure of the Accountancy Foundation. An Ethics Standards Board (ESB) was also included at the behest of the DTI.<sup>34</sup> The Accountancy Foundation is funded by all the accounting bodies in the United Kingdom.<sup>35</sup> It has four subsidiaries: the Review Board is responsible for oversight of the effectiveness of the regulatory and disciplinary activities; the APB; the ESB oversees the setting of ethical standards for the profession; and the Investigation and Discipline Board (IDB) investigates the role of accountants and auditors in major cases of public interest and is the successor body to the JDS. Key provisions are that no member of the Board of the Accountancy Foundation may be an accountant. No member of the Review Board may be an accountant in public practice, and there are only two qualified accountants on the Review Board, although its constitution does not disbar others. Membership of the other boards must be 60% nonaccountants (in the case of the APB 60% nonauditors).

The Accountancy Foundation was set up in 2000. The Review Board, APB and ESB were set up in 2001. The terms of reference of the IDB, particularly for cases which are in the process of being investigated by the JDS, are still being agreed and this board may not be operational until later in 2003. An outline of the new system was issued by the Foundation in January 2002 (Accountancy Foundation, 2002).

<sup>33</sup> Tim Smith, who was a government minister, was admitted accepting cash from Mohammed al Fayed, the Chairman of Harrods, in return for raising questions in the House of Commons. He failed to disclose the interest in the Register of Members' Interests. He was fined by the ICAEW but was allowed to stay in membership.

<sup>34</sup> Previously, the three Institutes of Chartered Accountants, ICAEW, ICAS, and ICAI, had operated the Chartered Accountants Joint Ethics Committee (CAJEC) and the ACCA had operated separately. Because of the importance of ethics to auditor independence, it was felt that oversight of ethics should be part of the Foundation's remit.

<sup>35</sup> The bodies are: ICAEW, ICAS, ICAI, ACCA, Chartered Institute of Management Accountants (CIMA), and Chartered Institute of Public Finance and Accountancy (CIPFA).



## 5. Developments in progress before the post-Enron reforms

Significant changes were already in progress in the United Kingdom before the impact of the Enron collapse and the demise of Andersen. These are set out below.

### 5.1. Securities regulation

The UKLA, a division of the FSA, is now the competent authority in the United Kingdom for securities regulation. The UKLA is responsible for the contents and the implementation of the UK Listing Rules and is accountable to the UK Treasury. However, responsibility for oversight of financial reporting and auditing rests with a different government department, the DTI. The UKLA now has (since 1 December 2001) statutory powers to impose penalties on companies and directors and has taken responsibility for regulation of insider dealing. The Chairman of the FSA has already stated publicly that the UK Listing Rules could be a vehicle for imposing auditor rotation, re-tendering of audits or restriction of nonaudit work (Accountancy Age, 2002). This has created uncertainty about the future scope of the UK Listing Rules, and how the Listing Rules fit with Company Law and the current regime for the regulation of auditors, including the Accountancy Foundation. The UKLA is currently considering the results of a consultation process on the UK Listing Rules (FSA, 2002b). This regime is recognized as being fragmented. A further complication is that the UKLA is the United Kingdom's representative in the global and European forums for securities regulators, despite having no control over the regulatory framework for financial reporting and auditing (other than additional disclosures in the Listing Rules). Nevertheless, as more directives come from EU and as the EU moves towards a single capital market, the UKLA's influence in the United Kingdom is likely to increase.

### 5.2. Reforms of company law

The Company Law Review and subsequent White Paper has generally been welcomed, particularly the plans to define director's duties and responsibilities more clearly and to introduce a penalty for withholding information from (in addition to refusing to supply information to) an auditor. The present market turbulence is likely to accelerate the introduction of a new Companies Act.

### 5.3. The conversion to IAS

Anecdotal evidence suggests that the reaction to the introduction of IAS in the UK varies according to the interest groups. The large listed companies will comply, and plans are already being made for conversion. IAS is not expected to be a problem for larger audit firms. They can look forward to extra fees in assisting with the conversion and providing training for the clients' staff. Introduction of IAS is unlikely to cause much disturbance to overseas registrants on the London Stock Exchange, who have flexibility in filing already. However, no one



underestimates the effort that will be needed to achieve a smooth changeover (Fearnley & Hines, 2003).

The major issue in the United Kingdom with the IAS conversion lies with the smaller companies. The DTI is consulting on this issue. The Chair of the UK ASB has already indicated the Board's intention that all new accounting standards issued by the ASB will be compatible with IAS, and that the long-term existence of two different forms of GAAP in the United Kingdom is unacceptable. The intention is that UK GAAP will eventually be identical to IAS.

A concern is emerging in the United Kingdom that if IASs, as they are developed, converge too closely with US GAAP, which is not popular in the United Kingdom because of its plethora of rules, smaller companies and smaller audit firms will find compliance too costly and burdensome (Fearnley & Hines, 2003).

Enforcement of compliance with IAS is recognized as a major issue within the EU, but is not viewed as a serious problem in the United Kingdom. The combination of the FRRP and the powers the UKLA has acquired since 1 December 2001 against directors, combined with the audit regulation regime, provides a framework for deterring noncompliance. The UK's post-Enron reforms are expected to strengthen the enforcement regime.

The position regarding the transfer of auditing from UK auditing standards to International Standards of Auditing is less certain and dependent on the level of progress made with the latter.

The EU plans for a common prospectus document are proceeding. Discussions are still taking place as to its final contents and where the responsibility for oversight will lie.

## **6. The government's interim post-Enron report**

The CGAA's interim report issued in July 2002 (CGAA, 2002) sets out key areas of potential change to the regulatory framework for companies and for auditors.

The potential changes for companies are: a more proactive regime for monitoring accounts by the FRRP; improved disclosure of the nature and value of nonaudit services purchased by the company; and development of the Combined Code for corporate governance in relation to the role and responsibilities of nonexecutive directors, with a particular focus on the relationship between the audit committee and the auditors.

To inform the corporate governance changes, two separate inquiries were set up. The first, to consider the role and responsibilities of the nonexecutive director, was set up by the Secretary of State in February 2002, alongside the establishment of the CGAA. A second inquiry, which specifically focussed on the role of the audit committee, was set up by the FRC in July 2002. The development of proposals for proactive monitoring of accounts and disclosure of nonaudit services was left to the FRC and DTI to develop. The discussions also involved input from the UKLA, as the FRRP's focus is primarily on the accounts of listed companies.

The potential changes for auditors are: a reconsideration of the permissibility of certain nonaudit services where there is incompatibility with the underlying principles of auditor independence; further consideration of mandatory audit firm rotation; a requirement that an

audit engagement partner should rotate every 5 years, rather than the 7 years set out in the EC's Recommendation (2002) on auditor independence; an early review of the arrangements for regulation of the accountancy profession and the funding arrangements; a review of the ownership of the monitoring process for the auditors of listed companies; an expectation of more openness and transparency by audit firms about their processes, procedures, accounts, and international networks; and, a requirement that the DTI and the Treasury should discuss with the Office of Fair Trading (OFT) whether there are any competition implications of the high concentration in the market for audit services. Resulting from these interim proposals, the DTI set up an additional inquiry to review the regulatory regime of the accountancy profession and further discussions were held with the OFT.

## 7. The UK government's post-Enron reforms

In January 2003, four reports were issued by UK regulators. The two corporate governance reports (FRC, 2003; Higgs, 2003) came first, thus enabling the CGAA to make reference to their findings in their final report (CGAA, 2003). The CGAA report and the DTI's Review of the Regulatory Regime of the Accountancy Profession (DTI, 2003) were issued together with an endorsement from the Secretary of State. The package of reforms covers the following areas: corporate governance, enforcement of compliance with accounting standards, changes to the regulatory regime of the accountancy profession, auditor independence, audit firm transparency, and competition implications of the UK market concentration.

### 7.1. Corporate governance

The two corporate governance reports contain few surprises and bring together issues which have been debated in the United Kingdom and other countries since the Enron collapse. Higgs (2003) makes recommendations about appointment, remuneration, resignation, independence, tenure, and time commitment for nonexecutive directors generally. Only two recommendations from this report have proved contentious. The first is that a chief executive should not become chairman of the same company.<sup>36</sup> There are concerns that this will deprive companies of knowledgeable chairmen. The second is that a senior independent director should be appointed who is available to shareholders if they are concerned that contact through the normal channels of chairman or chief executive has failed to resolve. There are concerns that this could be divisive.<sup>37,38</sup>

<sup>36</sup> It has been accepted best practice in the United Kingdom and is included in the existing Combined Code that the roles of chairman and chief executive should be split.

<sup>37</sup> Most UK boards are unitary, i.e., the nonexecutive directors and the executive directors meet together for management and strategic direction purposes. It is feared that mandating a senior nonexecutive director to address shareholder concerns will threaten the unity of the board.

<sup>38</sup> There have been many press reports and comments about these issues. One example is a leader in the *Financial Times*, of 11 February, 2003, 'A backlash from the boardroom', which supports the recommendations despite the criticisms made.



structures, and financial information. If the voluntary disclosure is not considered adequate, then legislation may follow.

#### 7.6. *Competition implications of the UK market concentration*<sup>47</sup>

The high level of concentration in the market is recognized; but following the recommendations of the Office of Fair Trading, the CGAA makes no recommendation for regulatory intervention.<sup>48</sup>

### 8. Conclusion

As can be seen from the changes introduced by the CGAA to the UK framework, there is no desire to introduce extensive legislation; and regulators wish to remain engaged with the professional bodies and continue to delegate regulation to private sector bodies and support voluntary codes of practice wherever appropriate. Legislation and extensive rules are seen as a backstop only to be applied where all else fails. Principles based frameworks continue to be supported.

The additional post-Enron reforms combined with the proposed changes to UK Company Law, the changeover to international accounting and auditing standards, increasing legislation from the EU, and possible changes to the UK Listing Rules present a major and potentially costly implementation challenge to UK companies, auditors, and regulators.

A final unresolved issue is the extent of the impact on the UK regulatory environment of the US Sarbanes/Oxley Act. About half the top hundred UK companies have securities listed in the United States, and the possibility that US regulators may involve themselves in the oversight of UK companies and audit firms is not a popular one, either with UK regulators, the European Commission, or the business community, particularly when viewed in the light of the many other changes the UK is currently absorbing.

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The authors wish to thank Richard Brandt, research fellow at Portsmouth Business School, for his assistance in the preparation of this paper.

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## **Book Review Section**

The book review section is interested in works published in any language, as long as they are comparative or international in character. The author or publisher of such works should furnish the book review editor with two (2) copies of the work, including information about its price and the address where readers may write for copies. Reviews will be assigned by the book review editor. No unsolicited reviews will be accepted. Suggestions of works that might be reviewed are welcomed.

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## Book reviews

### **Comparative International Accounting**

by Christopher Nobes and Robert Parker, Pearson Education Limited, Harlow (UK), 2002, seventh edition, xvii + 593 pp.

This textbook addresses undergraduate and postgraduate courses on comparative and international accounting. Given the important changes that have taken place in the international realm, this seventh edition has been thoroughly revised and updated, which is one of the main features that makes it so useful for students, teachers, and lecturers. The textbook is oriented to readers who are familiar with the Anglo-Saxon system of accounting; most of the comparisons are made by reference to UKGAAP, USGAAP, or International Accounting Standards (IAS). Nonetheless, because of the latest developments in international harmonization worldwide, this seems to be the proper way to tackle the issues under study and at the same time reach a wider readership.

The book is divided into four parts. Part I presents a broad overview of the context of international accounting. It comprises six introductory chapters, dealing with the causes of accounting diversity, the main differences in financial reporting, the classifications of accounting systems, and the efforts at achieving accounting harmonization. Chapter 5 on the international harmonization of accounting has been substantially changed because of the latest developments in the international realm and the recent restructuring of the International Accounting Standards Committee's (IASC) Board into the IAS Board.

Chapter 6 is one of the novelties in this edition because a growing number of companies and countries are using the IAS. The editors felt that a new chapter was needed to examine their contents and requirements.

As in the previous edition, Part II contains eight chapters on country studies. Part III is devoted to examining four particular financial reporting issues: liabilities, consolidations, foreign currency translation, and segment reporting. It should be noted that a new Chapter 15 has been added to this edition to address the treatment of various types of liabilities, whereas the chapter on inflation accounting in previous editions has been deleted because inflation is no longer an issue in most countries. Finally, Part IV includes four chapters on international analysis and management issues, such as international financial analysis, international auditing, international aspects of corporate income taxes (with a new introduction on international tax planning), and managerial accounting. The textbook offers a glossary of abbreviations, suggested answers for the first two questions proposed at the end of each chapter, an index of the authors cited in the end-of-chapter references, and an index organized by subjects.

Not only has this new edition improved the contents of the book by providing information on the current developments in international accounting in the countries under study and by the IASC itself, but the contents are also presented in a more user-friendly format for the reader. For instance, new sections of contents and objectives are now presented at the start of each chapter; at least seven questions are presented at the end, following an itemized summary of the chapter, together with updated references and Web sites of interest. Moreover, Part II of this edition has been definitely improved by the effort that has been put into shaping all of the chapters on the different countries in a similar and coherent way. The addition of a section on differences from IAS for each country under study is most illustrative and useful for readers, which demonstrates that the new chapter on IAS was really needed.

From the point of view of teachers and lecturers, this edition has the advantage of offering Internet material to support classroom use of the book. It includes outline answers for the remaining questions proposed at the end of each chapter as well as multiple-choice questions and suggested answers. In addition, it provides some of the tables from the text for the purpose of making overhead transparencies. An appendix with real examples from annual reports can also be downloaded together with a related set of proposed questions. The suggested answers are also available from the Internet. This is very helpful for students because it allows them to apply the contents derived from the analysis of the chapters, and teachers and lecturers will surely find it easier to offer their students new real-life examples and propose new exercises. To my knowledge, this edition is one of the pioneering books in regard to online material. The authors and editors should be congratulated for having succeeded in such an innovative initiative. Hopefully, competing textbooks will also improve in order to keep in pace with advances in information technology.

As in previous editions, the book is coedited by Christopher Nobes (who is also the author of nine chapters and coauthor in three chapters) and Robert Parker (author of four chapters and coauthor of three chapters). The other authors or coauthors are academics or practitioners with local knowledge of the different countries or institutions examined. Their experience in teaching and research or their expertise as partners in international audit firms and as members of regulatory bodies gives this book a well-founded approach to every topic.

Even though this new edition of the book has been thoroughly updated and revised, there is still some scope for improvement that may be explored in future editions. For example, given the important changes that worldwide convergence of accounting standards may bring about, Part I should pay more attention to *de jure* harmonization. Recent research looks into new methodological approaches to measure formal harmonization among different countries or across time or even looks into the correlation between substantive and formal declaration of harmonization. These studies open new avenues for research that are worth mentioning because, in light of the recent pronouncements by accounting regulators, worldwide efforts will shortly be made in the area of formal harmonization.

As regards Part II, although the editors carefully explain and discuss their choice of countries for study and the order in which they appear in the book (UK, USA, Netherlands, France, Germany, and Japan as well as a chapter on nine diverse countries and another chapter on central and eastern Europe and China), some worthwhile information on other countries is missing. At least, a general overview should be given of the accounting situation in Latin



American countries, especially Mexico, formerly a member country represented on the IASC board, and Argentina or Brazil, given their economic importance in the region and the fact that many multinational companies have substantial investments there. Perhaps this broad overview should also be extended to developing countries in Africa and Asia. These geographical areas deserve another section within one of the multicountry chapters or at least in an appendix with a brief summary or table setting forth the main influences from foreign or international GAAP. In this way, the reader will gain a wider vision of what the accounting situation is in most parts of the world.

As regards Part III, the contents of the chapters on liabilities and consolidations could be illustrated by simple numerical examples, as with the excellent examples provided in the chapter on foreign currency translation, so that the students can more easily understand how the different valuation methods work, together with their impact on companies' financial reports.

Finally, regarding Part IV, real examples of qualified audit reports should be included in the text (in addition to those available online), and the bibliographical references on international audit should be updated. The chapter on managerial accounting seems to be too focused on research studies and perhaps should be given a more pragmatic approach in order to make it more attractive to students.

In short, this is an excellent textbook on comparative international accounting. It provides a strong theoretical and conceptual background in Part I and covers a wide range of subjects: country studies in Part II, specific accounting issues in Part III, and a more general examination of analysis and management issues in Part IV. Each topic is clearly explained and very much up to date. Those looking for an in-depth knowledge of specific areas can find the bibliographical references to the latest research relating to each topic. This book is highly recommended not only for undergraduate and masters' courses but also for general research purposes, including gaining a first conceptual or theoretical picture of the area under study and finding references to related articles recently published in scholarly journals.

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### **Regulation of Corporate Accounting and Reporting in India**

By Bhabatosh Banerjee, World Press, Calcutta, 2002, xv+220 pp.

This book is a product of a research report written by the author in 1999. Its stated objective is to analyze the state of accounting regulation, past and present, to point out the emerging dimensions of accounting regulation having regard to the changes in economic policy in India and to suggest suitable improvements in keeping with the global trend.

Consisting of nine chapters, the book provides detailed coverage of accounting regulation. The reader will learn not only about accounting in India, but will also find detailed



comparisons with UK, U.S., and then IASC standards. Although the book is not intended to provide a history, it traces concerns about financial reporting in 1881 to current practices.

Chapters 1 and 2 mainly provide the setting for the book and highlight the need for regulation. The author discusses various perspectives on the role of accounting regulation and relates this to India. Chapters 3–5 are concerned with corporate legislation, professional regulation, and the role of governmental and voluntary bodies on financial reporting. Chapter 3 offers a detailed comparison of the Companies Acts of 1882, 1913, 1936, and 1956, which provide the basic rules and guidelines for preparation of financial statements and their disclosure in India and the Companies Bill of 1987, evaluating the stipulations in respect of (i) maintenance of books of accounts, (ii) annual accounts, (iii) audit of accounts, (iv) directors' reports, and (v) maintenance of cost records and audit of cost accounts. (In India, selected companies are required to keep cost records and have them audited by a qualified person.)

Professional regulation is the subject of Chapter 4, which discusses the role of the Institute of Chartered Accountants of India (ICAI) in setting accounting standards, outlines the salient feature of the 27 accounting standards issued by the ICAI, and provides some comparison between those and the IASC standards. The content of the standards is not underpinned by a conceptual framework, and it has been largely influenced by external factors, such as the IASC. Although compliance with the ICAI accounting standards is mandatory, as yet, there is no enforcement mechanism (such as the UK Financial Reporting Review Panel or the U.S. Securities and Exchange Commission). The author thus argues for the development of a conceptual framework for developing countries and for the better enforcement of accounting standards.

Although the Companies Acts and ICAI standards primarily underpin financial reporting in India, governmental and professional bodies (the subject of Chapter 5) also exert some influence. The Department of Public Enterprises (DPE) requires public enterprises to prepare accounts and report economic information on a uniform and comparable basis. They are required to comply with ICAI standards, subject to some "additions and amplifications" issued by the DPE. Stock Exchanges and the Securities and Exchange Board of India (SEBI), through the listing requirements, also have an impact on financial reporting in India. The SEBI requires, for example, the publication of a Corporate Governance Report, certified by the auditors, giving information about the composition and responsibilities of the board, details of the audit and remuneration committees as well as the shareholders' committee (whose purpose is to deal with complaints from shareholders). Other voluntary bodies also identified as making a useful contribution to the development of financial reporting include the Indian Chamber of Commerce, Indian Commerce Association, and Indian Accounting Association and its Research Foundation.

Chapter 6 describes the regulatory framework and accounting developments in the UK, the United States, and Japan. The nature of the standard-setting process, their enforcement, and the roles of various governmental and professional bodies (such as the FASB, SEC, and AICPA in the United States and the ASB, UITF, and FRRP in the UK) are discussed in some detail. Following a review of practices in these countries, the chapter discusses reasons for diversity in financial reporting and presents a framework for analyzing change in accounting

systems. The framework is used to study accounting changes in India. Important events that took place in India before and after independence from Britain in 1947 are discussed under (i) corporate legislation, (ii) professional developments, (iii) financial developments, and (iv) other (political and economic) developments. A table provides a useful summary of these developments from 1882 to 2001. The chapter sheds some important insights into accounting developments: various changes to the Companies Act in response to changing societal needs, for example, the provision of a Cost Audit since 1965; pressures from the capital market leading to the issuance of some 12 standards by the ICAI; the role of the government in regulating central public enterprises (which account for more than 60% of the corporate economy), whose reporting practices are generally better than those in the private sector; the SEBI's requirement for listed companies to publish an audited cash flow statement in their annual report; the pressure exerted by the SEBI, which led the ICAI to make segmental reporting mandatory for specified companies.

Chapter 7 presents an analysis of current reporting practices of two groups of companies: (a) 25 companies that are ranked in the top 500 by the *Economic Times* according to market capitalization and (b) another 25 ranked outside of the top 500. The results show that both groups equally comply with statutory disclosure requirements, but companies outside the ET 500 lag behind on voluntary disclosure, particularly in respect to the Corporate Governance Report and the management discussion and analysis statement. Some examples of good reporting practices (such as Economic Value Added) are included in the chapter. Overall, there is evidence of greater compliance with mandatory and recommended practice and increased voluntary disclosure of financial information in annual reports.

Chapter 8 reports the findings of a questionnaire survey of users' perceptions of financial reporting. The sample of 200 "users" was drawn from the membership of the Indian Accounting Association (and its Research Foundation), and the respondents included 39 academics and 14 professional accountants. Overall, the survey findings conclude that both academics and professionals (i) agree with the need for regulation through Companies Act or professional bodies, (ii) are undecided about desirability of self-regulation, (iii) believe that general purpose financial reporting does not serve the aims of all user groups, and (iv) do not consider the present system of reporting useful for investor/creditor decision making. Both parties agree with the need (i) to define the objectives of financial reporting in India, (ii) to have a conceptual framework, (iii) for future-oriented information to be included in the directors' report, and (iv) for independent standard setting and the enforcement of accounting standards.

Chapter 9 provides a summary and suggestions for the regulation of accounting in India. These include prescribing a format for the profit and loss account, revamping the standard-setting process by making it independent of the accounting profession and of the government, and enforcing financial reporting regulation through the DPE (for central public enterprises), SEBI (for listed companies) and the Department of Company Affairs (for nonlisted companies).

Complementing Richard Mattessich's *The Beginnings of Accounting and Accounting Thought* and Claire Marston's *Financial Reporting in India*, this book makes a valuable addition to the literature. Overall, it is well written, and it will be of interest to students and researchers of international accounting. Written by an established author, a major strength of

the book is its comparative approach to the study of accounting in India. As a contribution to the review of financial reporting practices for public policy formulation, the book is very informative and should be useful to researchers and regulators interested in accounting in developing countries.

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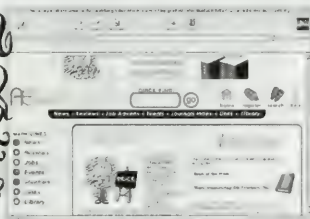
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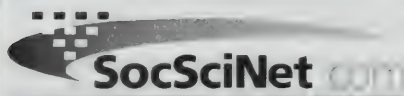
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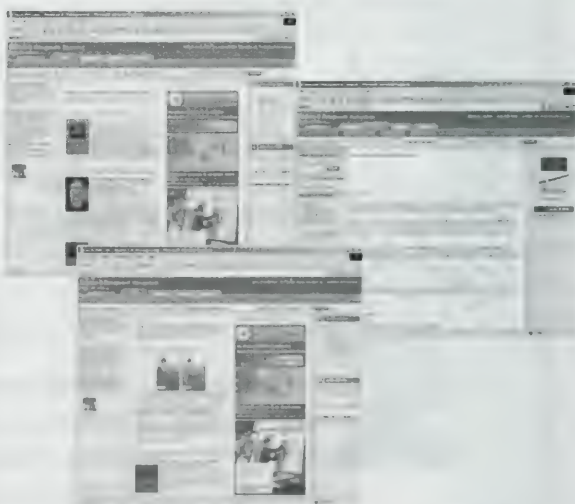
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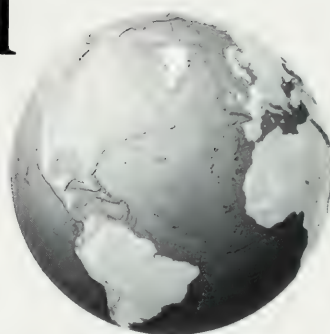
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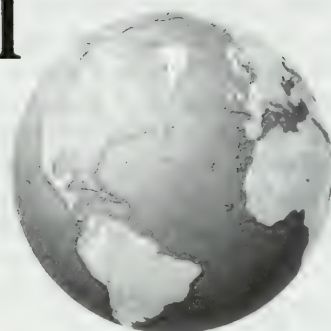


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## Earnings management and initial public offerings: Evidence from the Netherlands

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### Abstract

This paper presents one of the first studies of earnings management by initial public offering (IPO) firms in a European country. Using a sample of 64 Dutch IPOs, we investigate the pattern of discretionary current accruals (DCA) over time. We find that managers manage their company's earnings in the first year as a public company but not in the years before the IPO. We also examine the impact of earnings management on the long-run stock price performance of IPOs. We find a negative relation between the size of the DCA in the first year as a public company and long-run stock price performance over the next 3 years. A number of additional tests support these findings.

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*Keywords:* Initial public offering; Earnings management; Financial reporting

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### 1. Introduction

At the time of initial public offering (IPO), managers have private information about future cash flows, investment opportunities, and their own managerial skills. Investors, on the other hand, are uncertain about the prospects of the IPO firm. Because of this information asymmetry, IPO firms are required to publish a prospectus containing audited financial statements. These financial statements may help investors to determine what price they are

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willing to pay for the IPO shares. For example, Kim and Ritter (1999) document a significant and positive relation between financial statement numbers and offer prices for IPOs in the United States. However, these financial statements report asset and liability valuations as well as revenue and expense recognition reflecting discretionary choices allowed under generally accepted accounting principles [GAAP] (Neill, Pourciau, & Schaefer, 1995). The use of financial statement data in the market-price setting process, combined with accounting discretion, provides managers with both the incentives and possibilities to manage their company's earnings at the time of the IPO.

Healy and Wahlen (1999, p. 368) define earnings management as "...judgement in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers." An important element of financial reporting systems is that cash flow from operations plus accruals determine accounting earnings. Accrual decisions affect the reported net income by shifting the recognition of transactions and events to periods other than those in which the related cash flows occur. When increasing accruals in the current period, managers of IPO firms can therefore, without violating accounting rules, borrow income from other periods to manipulate the current period's income.

An important characteristic of accrual-based earnings management, however, is that accruals will total zero over the long run because the sum of earnings must equal the sum of cash flows over the life of business. As a result, any higher-than-normal accruals in one period must be offset by lower-than-normal accruals in other periods so that managers of firms with poor prospects cannot overstate earnings over longer periods of time without being detected. It is therefore expected that if these IPO firms exercise accounting discretion, they will at least do so in the financial statements related to their IPO as these statements will have the largest impact on the decisions made by market participants. Nonetheless, facing the decision to enhance short-run earnings are long-term costs. Since managers are forced into reversing accruals in subsequent periods, it is unlikely that they will be able to sustain inflated earnings numbers indefinitely. This implies a greater likelihood of reversal for poorly performing firms, since firms with good performance are likely to have improvements in cash flows without any need for further overreporting. As a result, we expect that the detection of earnings management leads outside investors to review their perception of future earnings quality and to downwardly adjust their valuation of IPO firms that engage in accrual-based earnings management.

Several studies have documented the use of earnings management related to securities offerings in the United States. Friedlan (1994) shows that IPO firms make income-increasing accruals in the most current statements included in the prospectus. In contrast, Aharony, Lin, and Loeb (1993), find little, if any, manipulation in the periods preceding the IPO. Magnan and Cormier (1997) report that Canadian IPOs take deliberate steps to move reported earnings numbers in the first year as a public company toward their voluntary forecast made at the time of the IPO. Teoh, Welch, and Wong (1998) observe that firms that report positive accruals in the first fiscal year as a public company experience poor stock price performance over the next 3 years.



To the best of our knowledge, our paper is the first to examine earnings management by IPO firms in a European country. We use a sample of 64 IPOs on Euronext Amsterdam between the years 1984 and 1994. Accounting standards in the Netherlands are broadly formulated, which is in contrast to more descriptive and explicitly detailed formulation of accounting standards in other countries (Vergoossen, 1997). These interpretative accounting standards provide Dutch companies with considerable discretion in their use of accruals. Several institutional differences between Dutch GAAP and International Accounting Standards (IAS) motivate our study of Dutch IPOs as discussed in the following section. The focus of our paper is how managers use accruals before and after the IPO. Like Teoh et al. (1998), our paper compares the long-run stock price performance of IPOs that aggressively use accrual-based earnings management to the performance of those firms that do not appear to engage in that activity in order to assess the long-term effects facing the decision to increase short-run earnings.

The remainder of this paper is organized as follows: Section 2 summarizes the main characteristics of Dutch GAAP. Section 3 develops our hypotheses. Section 4 describes the data. Section 5 discusses methodology. Section 6 examines how managers use accruals both before and after the IPO. Section 7 investigates the relationship between earnings management and long-run stock price performance. Section 8 checks the robustness of our results. Finally, Section 9 concludes and compares the results to related findings in the United States.

## 2. Dutch accounting in an international perspective

Ball, Kothari, and Robin (2000) show that the impact of accounting principles on the valuation of assets and liabilities and recognition of costs and revenues differs widely across countries. A common classification made between international accounting systems is that of the Anglo-Saxon model versus the Continental model. Under the ‘true and fair view’ doctrine of the Anglo-Saxon model, managers may exercise discretion when determining the firm’s financial position and earnings. The codified reporting requirements of the Continental model, such as those observed in Germany result in conservative accounting through the use of secret reserves and provisions.

Nobes and Parker (2000, Chap. 8) and Radebough and Grady (1997, Chap. 5) conclude that the Dutch reporting requirements and practices are in many ways similar to those used in the United Kingdom and the United States. Dutch accounting is described as being more subjective and less rule-oriented than the Continental model, although Dutch company law also codifies reporting requirements.<sup>1</sup> For example, one aspect of the Dutch GAAP is that

<sup>1</sup> In the Netherlands, the Civil Code, Book 2 (*Burgerlijk Wetboek, Boek 2*) stipulates most of the legal framework for financial reporting by companies. The Council on Annual Reporting (*Raad voor de Jaarverslaggeving*) interprets the sections of the Act. The Annual Reporting Guidelines promulgated by the Council on Annual Reporting are intended to have an impact on accounting practice. It is neither mandatory for companies to adhere to these guidelines nor obligatory for auditors to qualify their reports if the guidelines are not followed.

accounting policy changes occur frequently and that the diversity of adopted accounting principles is high (Vergoossen, 1997). Additionally, Dorsman, Langendijk, and van Praag (2003) document a widespread use of discretionary accounting by Dutch firms in an attempt to improve the accuracy of qualitative earnings forecasts.

Hoogendoorn (1995) and Van Rooijen (2002) show that, when compared to IAS, Dutch GAAP offers flexibility in areas relating to foreign currency translation, classification of extraordinary items, intangible fixed assets (i.e., the treatment of goodwill and research and development costs), and the use of provisions.<sup>2</sup> Van Rooijen (2002, p. 154) identifies a number of major items that allow for managerial discretion within Dutch GAAP. These are (1) tangible fixed assets including financial fixed assets, (2) intangible fixed assets (expenses related to share issues, R & D, intangible rights, and goodwill), (3) current assets (i.e., stocks, work in progress, accounts receivable, and securities), (4) provisions (pension, taxation, and other provisions), (5) shareholder's equity, (6) accounting policy changes, and (7) extraordinary items.

With respect to tangible fixed assets, Dutch GAAP allows for valuation on the basis of either historical cost or current cost. This also entails revaluation of fixed assets, thereby creating a revaluation reserve (part of the equity account). Current cost accounting is still used by some companies in the Netherlands. Regarding intangible fixed assets, Dutch GAAP allows the capitalization of costs related to share issues, which is particularly relevant in the case of IPO firms. Discretion also includes capitalizing or expensing R&D, as well as the treatment of goodwill. The latter may be expensed immediately in the income statement, charged against owner's equity, or capitalized and amortized over its useful life. It has been common practice for Dutch companies to charge goodwill against owner's equity, hence, profits were not affected (in the current and future years).<sup>3</sup> Intangibles also may incorporate start-up expenses, membership rights, trade names, and software. Provisions present a major discretionary part of income determination. Under Dutch GAAP, provisions should meet two conditions: they must be identifiable and the specific risks or events these risks refer to must have existed prior to the balance sheet date. Risk identification is very subjective and therefore allows substantial discretion. Estimating the amount of the provisions is also a highly subjective matter. An example of a specific provision often used by Dutch firms to exercise discretion is the provision for reorganization. Other examples of provisions include maintenance provisions and warranties provisions.<sup>4</sup> Finally, the definition of extraordinary

<sup>2</sup> Casual observation indicates that Dutch IPOs use the flexibility offered by Dutch GAAP. One telling example is that of Text Lite Holding, which used its accounting discretion to conceal its poor operating performance. The firm showed €4.5 million of sales without either delivering the goods or receiving any payment. According to such inappropriate recognition of revenues, the firm reported a small profit of €60,000. Since the auditor withheld its approval, Text Lite Holding had to revise its annual accounts, uncovering a sizeable loss of €2.4 million.

<sup>3</sup> Similar to IAS, current Dutch GAAP requires goodwill to be capitalized and amortized.

<sup>4</sup> Maintenance provisions are created to anticipate future costs associated with the periodical maintenance of certain fixed assets. Warranties provisions are related to warranties deriving from the sales of a product or service.



items under Dutch GAAP is broader than the IAS definition and therefore allows Dutch companies more discretion in classifying transactions as extraordinary.

In summary, the items mentioned here are not an exhaustive list of all discretionary items of the Dutch financial reporting system, however, they represent the major areas of flexibility offered by Dutch GAAP in comparison to IAS. Hence, Dutch GAAP holds a unique position in international accounting systems. It combines the managerial discretion of Anglo-Saxon accounting with the codified accounting rules of the Continental European model. Apart from the requirements stemming from the Dutch GAAP, companies that want to access public capital markets have to meet certain listing requirements set by Euronext Amsterdam such that only qualifying enterprises are allowed to access public capital markets. Specifically, Euronext Amsterdam requires that prospectuses disclose 3 years of annual accounts and include a discussion of the expected development of turnover, staff, investments, financing, and profit-earning power. However, if disclosure of these items of information is contrary to public policy or would cause serious harm to the company, they can be omitted from the prospectus. Therefore, Dutch listing requirements do not stress disclosure and transparency to the same extent as in the United States.

### 3. Hypotheses

Arguably, the lack of information about IPO firms makes financial statement disclosures carry more weight with investors than is typical for non-IPO companies. This offers managers both the incentives and opportunity to engage in earnings management. IPO firms are presented with two alternatives regarding the timing of earnings management. The first alternative involves managers using income-increasing accruals before the IPO. If investors rely heavily on financial statement disclosures in pricing IPO shares, managers may resort to income-increasing accruals to achieve higher offer prices. This predicts that managers tend to use income-increasing accruals prior to going public to increase the offering proceeds. Friedlan (1994) reports companies that publish an interim report before the IPO manage earnings in the interim report and not in the full year financial statements prior to the IPO. He argues that managers engage in earnings management in the most recent financial statement to increase the offer price at the time of the IPO. Aharony et al. (1993), on the other hand, find little earnings management in the years before the IPO. Hence, we hypothesize,

**Hypothesis 1a:** Discretionary accruals are more income-increasing in the period before the IPO than in later periods.

The second timing option is related to using income-increasing accruals during the first year as a public company in order to support high stock prices after IPO.<sup>5</sup> Accrual-based earnings management may benefit managers as they have entered into lock-up agreements with

<sup>5</sup> Throughout this paper we use the 'first year as a public company' and the 'IPO year' as synonymous.



underwriters that prevent them from selling shares for a specified length of time (typically 12 months in the Netherlands). Managers who wish to sell their shares at the end of this lock-up period have an incentive to support the stock price of the firm in the first year after the IPO. Another reason to manage earnings in the first financial year as a public company is that firms are under considerable pressure to meet earnings forecasts issued at the time of the IPO. This is particularly relevant for those companies that experience an unexpected decline in cash flows in that same year. For example, Magnan and Cormier (1997) show that Canadian IPOs engage in earnings management in their first year as a public company in order to meet their voluntary forecasts made at the time of the IPO. The survey results of Von Eije, de Witte, and van der Zwaan (in press) show that this may motivate earnings management by Dutch IPOs as well. They find that 17 out of 25 CEOs at Dutch IPO firms indicate that the planning and control of company earnings increased after the IPO. Hence,

**Hypothesis 1b:** Discretionary accruals are more income-increasing in the first year as a public company than in later periods.

Chaney and Lewis (1995) develop a theoretical model of firm valuation under information asymmetry. Their model predicts that users of financial statements require more than reported earnings to recover all the value-relevant information from these financial statements. The information about accruals may be useful to gradually arrive at a more accurate valuation of the firm over time. In the case of IPOs, the misalignment of incentives between management and potential investors may lead managers to manage earnings opportunistically in the financial statements surrounding the IPO. Whenever market participants fail to understand this transitory nature of the improved earnings due to accruals, these firms will initially trade at overvalued prices. However, facing the opportunistic decision to enhance short-run earnings are long-term costs.

Given that managers are forced into reversing accruals in subsequent periods, it is unlikely that poor-quality firms will be able to sustain inflated earnings numbers indefinitely. This implies a greater likelihood of a subsequent decline in earnings for poor-quality firms, since high-quality firms with good performance are likely to enjoy genuine improvements in cash flows with little need for further overreporting. In other words, for poor-quality firms that engage in earnings management, cash flows are likely to be insufficient to mitigate the impact of these reversing accruals. As a result, the detection of earnings management leads outside investors to review their perception of future earnings quality and to downwardly adjust the value of the shares. This is consistent with the investor sentiment model of Barberis et al. (1998). They argue that investors naively extrapolate the growing trend in earnings resulting in overvaluations in the short run. Because earnings follow a random walk, such overreaction is exposed by future earnings, leading to the reversal of long-term returns. Accordingly, Teoh et al. (1998) show that earnings management is associated with poor stock market performance of U.S. IPOs. Thus,

**Hypothesis 2:** IPO firms in which managers engage in earnings management experience poor long-term stock price performance.

#### 4. Sample selection and data

Our original sample consists of 80 firms that went public on Euronext Amsterdam between January 1984 and December 1994. IPOs from the banking and financial sectors (nine firms) are excluded from the sample since the financial reporting requirements for these firms are different from industrial firms. Furthermore, companies with financial statements not based on Dutch GAAP (two firms), having a change in financial year-end (one firm) or which were in the development stage (one firm) are also removed from the sample. In addition, privatizing firms (three firms) are excluded from the sample. After omitting these cases from the sample, the study consists of 64 IPO firms with a total of 353 firm-year observations. Of these 64 sample firms, 27 firms are listed on the Official Market, and the remaining 37 companies are listed on the Parallel Market.<sup>6</sup>

Financial statement data for the years prior to going public are hand-collected from prospectuses. Accounting data concerning the years after the IPO are obtained either from annual reports or from the publication *Yearbook of Dutch Companies*. *Datastream* is the source used for stock return data. These returns are adjusted for rights issues, stock splits, cash and stock dividends (assumed to be reinvested in the same stock). There is no distinct clustering of IPOs in industries. A range of industries is represented in the sample in which manufacturing (11 firms), wholesale trade (9 firms), computer services (8 firms), electronic equipment and components (5 firms), business services (5 firms), transportation (4 firms), and building construction (4 firms) dominate.

Table 1 presents summary statistics. Several features of the sample are worth mentioning. To start, Dutch IPOs display less underpricing compared to the underpricing that occurs in other countries. Table 1 shows that IPOs in The Netherlands experience an average underpricing of about 4% compared with an average underpricing of 15% reported for the United States (Loughran, Ritter, & Rydqvist, 1994). This can be explained by the use of auctions as a selling mechanism for Dutch IPOs in the earlier part of our sample period (auctions were used until 1990). IPOs priced through auctions (23 firms) show an average underpricing of 1.5%. The average underpricing for fixed-price offerings (41 firms) amounts to 5.1%. Furthermore, pure secondary offerings (26 firms) are more frequent than pure primary offerings (6 firms) in the Dutch IPO market. Under pure secondary offerings, no new shares are issued at the IPO. The other IPOs (32 firms) consist of both a primary and a secondary component. On average, the split between primary and secondary shares is 28–72% of the offering. As a result, the larger part of the funds raised in IPOs on Euronext Amsterdam go to pre-IPO owners. This differs from the United States, where IPOs tend to largely consist of newly issued shares. Habib and Ljungqvist (2001) find that the average U.S. IPO is comprised by 80% of newly issued shares.

<sup>6</sup> In 1982, a second tier of Euronext Amsterdam (the “Official Parallel Market”) was created. No material differences existed between the listing requirements of the first tier (“Official Market”) and the Parallel Market, except for a less stringent free float requirement of 10% on the Parallel Market. The Parallel Market was closed in 1994, and was later replaced by a new intermediary tier (the “New Market”) in 1997.



Table 1  
Summary statistics

	Mean	Median	S.D.	Maximum	Minimum
Market value (€ million)	177.80	43.56	447.78	3099.28	11.31
Proceeds (€ million)	50.23	12.29	104.12	567.19	2.14
Total assets (€ million)	205.16	46.90	523.71	3333.39	3.61
Sales (€ million)	289.21	65.72	621.57	3330.62	5.08
Age (years)	35.23	19.00	34.70	152.00	1.10
Underpricing (%)	3.82	0.82	12.62	70.00	– 31.24
Primary offering (%)	27.81	18.98	32.85	100.00	0.00

This table shows the summary statistics for 64 firms that went public on Euronext Amsterdam between January 1984 and December 1994. Market value is computed as the number of shares outstanding after the offering times the closing price on the first day of trading. Proceeds are defined as the number of shares offered multiplied by the offer price. Total assets and sales figures pertain to the financial year prior to going public. Age is the number of years the company was in existence prior to listing. Underpricing is defined as the percentage difference between the closing price on the first day of trading and the offer price. Primary offering is the number of newly issued shares divided by the number of shares offered. All monetary amounts are expressed in constant 1998 prices using the GNP deflator.

Table 1 also shows Dutch firms of a wide range of sizes go public. The median book value of assets prior to listing is €46.9 million with a minimum of €3.6 million and a maximum of €3,333 million. This is much larger than the US\$5.8 million median book value for U.S. IPOs, reported by Mikkelsen, Megan Partch, and Shah (1997). Market value and sales prior to listing show a similar picture. Dutch IPO firms also vary considerably in years of operating history at the time they go public with an average age of about 35 years. In contrast, the average age of U.S. IPO firms is about 10 years (Megginson & Weiss, 1991).

## 5. Methodology and variable measurement

### 5.1. Measuring earnings management

Jones (1991, p. 207) defines total accruals as the difference between earnings and operating cash flow. Her accrual approach is based on the idea that information on operational cash flow presents a more objective measure (i.e., one less subject to manipulation by management) of real economic performance than earnings. Although most accounting researchers employ the Jones (1991) definition of total accruals to test for earnings management, Dechow (1994) and Teoh et al. (1998) show that most of the variation in total accruals is driven by current accruals.<sup>7</sup> Our study therefore derives its

<sup>7</sup> Companies can manage their earnings through voluntary changes in accounting procedures, through the timing of real investment or financing decisions and through the discretion of accruals. Changes in accounting procedures, extraordinary items or timing financial and investment decisions are not appropriate for our study since these transactions are highly visible and could probably be easily detected by investors. On the other hand, accounting accruals are less visible and the information required to adjust their income effects might not be readily available.



measures of earnings management from working capital accruals or current accruals. Current accruals are revenues and expenses that firms include in a period's net income although the cash flows associated with these revenues and expenses take place in earlier or later periods. Current accruals consist of changes in current assets and current liabilities, where current assets are corrected for changes in cash and current liabilities are adjusted for changes in maturities of long-term debt.<sup>8</sup> In particular, current accruals are determined as {current assets – cash} – {current liabilities – current maturities of long-term debt}.

These current accruals can be broken up into nondiscretionary and discretionary parts. Whereas nondiscretionary current accruals (non-DCA) are constrained by rules, institutions, and economic circumstances, only discretionary current accruals (DCA) are subject to management. The method chosen for separating discretionary from non-DCA is a crucial measurement issue, as each model differs in its assumptions and implications about the behavior of nondiscretionary accruals. To measure accruals-based earnings management, we conduct two different tests. The first approach involves an extended estimation procedure. Jones (1991) advocates a cross-sectional technique regressing current accruals on the change in revenues to control for changes in nondiscretionary accruals, thereby allowing the nondiscretionary accruals to vary from period to period. Dechow, Sloan, and Sweeney (1995) argue that revenues are not completely without discretion. They propose to adjust the change in revenue by subtracting the change in accounts receivable. The refinement is intended to remove the effects from managerial discretion over credit sales from nondiscretionary accruals, thereby improving the likelihood of detecting revenue-based earnings management. We construct an estimation sample of 1715 seasoned firm-years.<sup>9</sup> A seasoned firm is defined as a firm trading on Euronext Amsterdam at any time between January 1981 and December 1997 that did not have an IPO in the previous five years. We estimate year-by-year regressions for the period (1981–1997) using this estimation sample.<sup>10</sup> The year-by-year regression model is specified as follows:

$$\frac{CA_{j,t}}{TA_{j,t-1}} = \beta_0 \frac{1}{TA_{j,t-1}} + \beta_1 \frac{\Delta REV_{j,t}}{TA_{j,t-1}} + \varepsilon_{j,t} \quad (1)$$

where  $j$  is the seasoned firm index (we estimate each year-by-year regression using about 100 seasoned firms),  $t$  is the time index ( $t=1981, \dots, 1997$ ),  $CA$  represents current

<sup>8</sup> Since the tax accrual is rather difficult to determine within Dutch GAAP, the changes in taxes payable, included in the current liabilities, are used as a proxy for the actual income tax paid.

<sup>9</sup> Abe de Jong generously provided the data set of seasoned firms.

<sup>10</sup> Note that the year-by-year regressions would require estimating Eq. (1) per industry (generally known as the cross-sectional Jones, 1991 model). Unfortunately, the small size of the Dutch capital market prevents us from estimating the model on an industry basis (this would reduce the amount of seasoned industry peers to less than 10 for most year-by-year regressions). We are thus forced to aggregate over all industries. In unreported tests, we have included industry dummies in the year-by-year regressions to capture some of the industry variation in nondiscretionary accruals. We obtain qualitatively similar results.

accruals, TA stands for lagged total assets, and  $\Delta\text{REV}$  is the change in revenues.<sup>11</sup> The nondiscretionary component of current accruals of IPO firms is determined through multiplication of their inverse of total assets and their change in revenues (corrected for changes in their accounts receivable) with the appropriate coefficients of the year-by-year regressions for the estimation sample of seasoned firms. The discretionary part of their current accruals is then calculated as the difference between their current accruals and nondiscretionary accruals:

$$\frac{\text{DCA}_{i,t}}{\text{TA}_{i,t-1}} = \frac{\text{CA}_{i,t}}{\text{TA}_{i,t-1}} - \hat{\beta}_0 \frac{1}{\text{TA}_{i,t-1}} - \hat{\beta}_1 \frac{\Delta\text{REV}_{i,t} - \Delta\text{AR}_{i,t}}{\text{TA}_{i,t-1}} \tag{2}$$

where  $i$  is the IPO firm index ( $i = 1, \dots, 64$ ),  $t$  represents the fiscal year relative to the offering ( $t = -2, \dots, 3$ ),<sup>12</sup> DCA denotes discretionary current accruals, and  $\Delta\text{AR}$  is the change in accounts receivable. A significant and positive level of DCA is viewed as earnings management.

The second approach to separate non-DCA and DCA assumes that non-DCA are constant such that the cumulative effect of DCA equals the change in current accruals (DeAngelo, 1986). This procedure uses current accruals from an earlier period as a measure for normal accruals such that the first difference in current accruals is viewed as the amount of current accruals that are at managerial discretion. A significant positive change in current accruals is interpreted as indicative of income-increasing DCA. However, an important reason as to why firms go public may be that they experience rapid growth. Such growth may give rise to nondiscretionary accruals that are not stationary. Therefore, adjustments are made to reduce the chance that the measure of DCA is due solely to growth (Aharony et al., 1993). The adjustment involves dividing the first differences by the average of total assets in the period instead of lagged total assets as suggested by DeAngelo (1986), such that:

$$\text{DCA}_{i,t} = \frac{\text{CA}_{i,t}}{(\text{TA}_{i,t} + \text{TA}_{i,t-1})/2} - \frac{\text{CA}_{i,t-1}}{(\text{TA}_{i,t-1} + \text{TA}_{i,t-2})/2} \tag{3}$$

<sup>11</sup> Total assets at the beginning of the period are an appropriate book measure of the investment base used to generate earnings. Alternative deflators were also considered, including the market value of equity and the book value of net assets. Each of these deflators introduces complications. Obviously, market value of equity is unavailable for the years preceding the IPO. Book value of the net assets is problematic because it can take on values that are negative, producing economically meaningless figures. We also estimated the cross-sectional Jones (1991) model using the average total assets during the period as a deflator. This reduces the chance that growth in accruals proportionate to growth in assets would be interpreted as an increase in discretionary current accruals (Aharony et al., 1993). Nonetheless, qualitatively similar results are obtained as with lagged total assets.

<sup>12</sup> The time index pertains to the second (coded  $-2$ ) and the first fiscal year (coded  $-1$ ) prior to going public, the first financial year as a public company (coded 0), as well as the second (coded 1), third (coded 2), and fourth fiscal year (coded 3) as a publicly traded firm. Fig. 1 shows our timing convention in more detail. For instance, consider Helvoet Holding, which went public in May 1990. At its financial year's end at December 31, the prospectus contains the annual accounts for 1988 (coded  $-2$ ) and 1989 (coded  $-1$ ). The IPO year includes 1990 (coded 0), whereas the subsequent three fiscal years are 1991, 1992, and 1993 (coded 1, 2, and 3).



where  $i$  is the IPO firm index ( $i = 1, \dots, 64$ ),  $t$  represents the fiscal year relative to the IPO ( $t = -2, \dots, 3$ ), DCA denotes discretionary current accruals, CA represents current accruals, and TA stands for total assets.

## 5.2. Measuring long-term stock price performance

Stock returns are measured using compounded buy-and-hold returns, inclusive of dividends and other distributions. Buy-and-hold abnormal returns (BHARs) are calculated using the corresponding return on four different benchmarks. The use of different benchmarks makes it harder to dismiss our long-horizon tests as a consequence of test misspecifications. Barber and Lyon (1997) show that test statistics based on abnormal returns may be misspecified because of new listing, rebalancing, and skewness bias. To correct for these biases, they advocate computing a benchmark portfolio by matching the sample firms to control firms of similar sizes and book-to-market ratios.

The particular benchmarks we use in this study involve (i) a value-weighted market index (CBS total-return general-price index), (ii) an equally weighted market index, (iii) size benchmark portfolios, and (iv) book-to-market benchmark portfolios. Appendix A discusses the formation of the benchmarks. We match the date of return measurement with the date of availability of accrual information that is hypothesized to influence stock price performance. This corresponds to the return measurement of Teoh et al. (1998). Hence, month 0 is defined as 4 months after the closing of fiscal year (0) and is assumed to be the month when the publicly traded company releases its first annual report. Benchmark-adjusted returns are calculated for an after-market period up to 36 months after month 0 where post-IPO fiscal year-end event months are defined according to the time line depicted in Fig. 1.

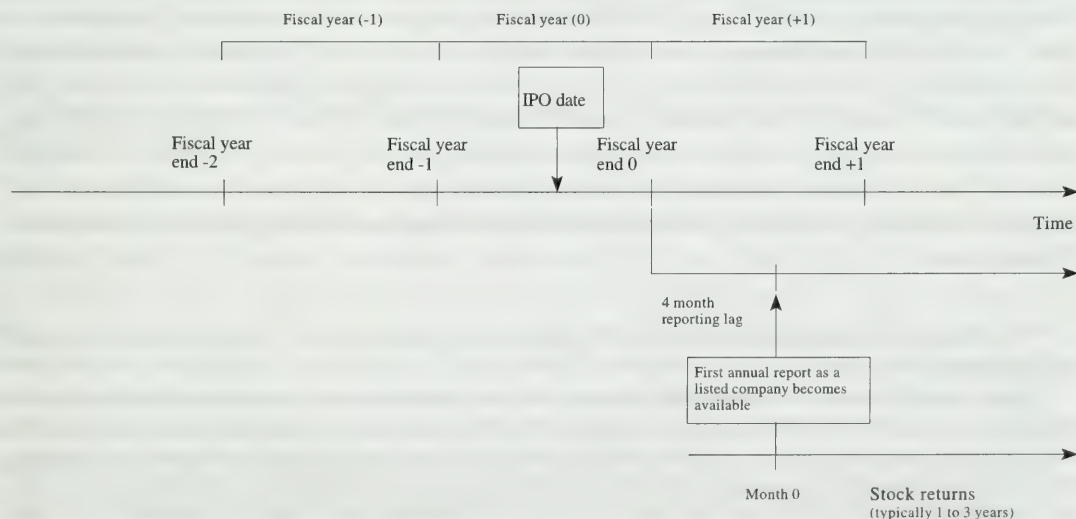


Fig. 1. Timeline.



For IPO firms that are delisted before the 36-month holding period, the aftermarket period is truncated, ending with the last listing in the newspaper *Het Financieele Dagblad*.<sup>13</sup> The BHAR for firm  $i$  is defined as:

$$\text{BHAR}_{i,T} = \prod_{t=0}^{\min(T, \text{delist})} (1 + r_{i,t}) - \prod_{t=0}^{\min(T, \text{delist})} (1 + r_{b,t}) \quad (4)$$

where  $\min(T, \text{delist})$  is either the delisting date or month 36 (whichever comes first),  $r_{i,t}$  is the raw return on firm  $i$  in month  $t$ , and  $r_{b,t}$  is the raw return on the particular benchmark over the same period. The average holding period total returns are measured as:

$$\text{BHAR}_T = \frac{1}{n} \sum_{i=0}^n \text{BHAR}_{i,T} \quad (5)$$

where  $n$  is the number of firms in the portfolio. This captures the total return from a buy-and-hold strategy where a stock is purchased in month 0 and held until (i) its 36-month anniversary, or (ii) the company's delisting date, whichever comes first.

## 6. The use of accruals before and after the IPO

Table 2 shows the mean and median net income and cash flows from operations<sup>14</sup> during the years before and after the IPO. Net income and operating cash flow are scaled by lagged total assets. The earnings and cash flow patterns suggest that IPO firms experience more favorable economic circumstances prior to going public than afterwards. It is important to note what happens in year (0) (i.e., the first financial year as a public company) compared to year (– 1) (i.e., the last financial year included in the prospectus). The operating cash flow of the average IPO firm declines from 17.5% to 8.6% of lagged total assets. However, the decline in net income in that period is much smaller; from 13.5% to 12.9% of lagged total assets. There also exists a decline in net income from year (0) to year (+ 1) (i.e., the second financial year as a public company). In that period, net income declines from 12.9% to 8% of lagged total assets. This shows that the decrease in net income lags the decline in cash flows for one year.

<sup>13</sup> The average holding period is 34 months. Firms were delisted because of takeover (seven firms) and financial distress (two firms).

<sup>14</sup> Since most IPO firms in the Netherlands do not adopt the cash flow format, operating cash flow needs to be estimated from other financial statement data (Van der Goot, 1997). Consequently, our study determines cash flow from operations using the so-called indirect method. We use the procedure of the Annual Reporting Committee (guideline 4.20 on cash flow statements) and the International Accounting Standard Committee (IAS 7 on cash flow statements). The cash flow from operations is derived after adjusting net income for (i) changes in working capital components during the year, (ii) noncash items like depreciation, and (iii) all other items for which the cash effects are investing or financing cash flows.

Table 2  
Net income, cash flow from operations, and DCA over time

	Year (– 2)	Year (– 1)	Year (0)	Year (+ 1)	Year (+ 2)	Year (+ 3)
<i>Panel A: Net income</i>						
Mean	8.52	13.50	12.85	7.96	7.96	7.90
Median	7.44	9.75	9.17	8.37	7.35	6.80
Standard deviation	12.52	11.87	12.64	12.64	8.40	6.75
Maximum	41.43	68.84	73.20	37.60	30.17	25.01
Minimum	– 57.49	1.84	– 22.57	– 36.12	– 10.69	– 7.73
<i>Panel B: Cash flows</i>						
Mean	14.53	17.50	8.58	11.69	10.97	9.64
Median	12.28	11.20	10.25	11.32	9.03	8.90
Standard deviation	16.37	22.15	16.95	13.61	13.09	9.96
Maximum	62.58	105.44	55.48	64.58	43.82	37.23
Minimum	– 25.58	– 12.82	– 38.82	– 29.10	– 46.86	– 16.43
<i>Panel C: Discretionary current accruals</i>						
Mean	– 1.54	0.21	6.55	– 4.24	– 1.94	– 0.25
<i>t</i> value	– 0.85	0.14	3.81 <sup>a</sup>	– 4.29 <sup>a</sup>	– 1.44	– 0.19
Median	– 0.26	1.02	3.85	– 4.38	– 0.63	0.42
<i>z</i> value	– 0.92	0.56	3.34 <sup>a</sup>	– 3.98 <sup>a</sup>	– 1.15	0.20
Standard deviation	13.32	12.03	13.77	7.34	10.35	10.15
Maximum	36.57	24.25	64.22	16.98	17.21	30.86
Minimum	– 37.27	– 41.30	– 16.01	– 25.06	– 54.79	– 34.60
Number of observations	53	61	64	61	59	55

This table reports on the mean, median, standard deviation, maximum and minimum of net income, cash flows from operations and discretionary current accruals. All values are expressed as a percentage of lagged total assets. Net income is the bottomline earnings figure. Cash flow from operations is computed by adjusting net income for (i) changes in working capital components during the year, (ii) noncash items like depreciation, and (iii) all other items for which the cash effects are investing or financing cash flows. This matches the cash from operations definition outlined in Dechow (1994). DCA are determined using the cross-sectional Jones (1991) method. The year of the IPO is labeled year (0).

<sup>a</sup> Indicates significance at the 1% level, using the parametric *t* test for the means and the Wilcoxon signed-ranks test for the medians.

How does the average IPO firm use current accruals over time? We estimate the cross-sectional Jones (1991) model in order to determine DCA over time (Eq. (2)). We present the results in Panel C of Table 2. The average DCA, which are – 1.5% of assets in year (– 2), increase to 0.2% in year (– 1), and increase to arrive at 6.5% in the first financial year as a public company (0). Although amounts vary, other studies generally document similar earnings management ranging from 1.5% to more than 5% of lagged total assets (see Magnan & Cormier, 1997; Teoh et al., 1998). If any earnings management is to be reported in the years before the IPO, it relates to insignificant income-decreasing, as opposed to significant income-increasing discretionary accruals. We argue that the timing of the IPO may limit firms' ability and need to make income-increasing accruals in financial statements preceding the IPO. However, our results



strongly support the expected use of income-increasing DCA during the IPO year (0) (Hypothesis 1b).

Table 3 presents the average changes in scaled net income, cash flows, current accruals, and provisions. The changes have been calculated as the first differences of the respective variables deflated by the average of total assets during the period (see Eq. (3)). Next to the average changes, Table 3 also reports the median change for each of the variables. We use parametric *t* tests to ascertain whether the average change from year to year is different from zero, whereas Wilcoxon signed-ranks statistics are calculated to determine whether the median change is significantly different from zero. The results presented in Panel A of Table 3 show that the only significant increase in net income is reported during the year ( $-2/-1$ ) prior to the IPO. There is a significant decline in net income in the year ( $0/+1$ ). Panel B of Table 3 shows that only the IPO year ( $0/-1$ ) yields a significant negative cash flow change.

Panel C of Table 3 shows the results using the second method to determine DCA. This approach involves using accruals from a prior period  $t-1$  as a measure for normal accruals such that the first difference in current accruals is viewed as the amount of accruals that are at managerial discretion. A significantly positive change in accruals is indicative of income-increasing discretionary accruals. The results indicate significant income-increasing current accruals during the first financial year as a public company ( $-1/0$ ) for 66% of our sample firms. The average (median) change in current accruals amounts to 6.1% (4.5) of the average of total assets. During the following year ( $0/+1$ ), the accruals are (partially) reversed for 62% of firms. There is no significant accrual change during the year prior to going public ( $-2/-1$ ).

The results presented on the level of current accruals support Hypothesis 1b, which states that discretionary accruals of IPO firms are more income-increasing in the year of the IPO (i.e., the first financial year as a public company). Contrary to Hypothesis 1a, we report insignificant income-increasing accruals during the year prior to going public ( $-2/-1$ ). In addition, Table 3 uncovers a potential motivation for earnings management. In general, IPO firms experience an adverse cash flow change during the IPO year ( $-1/0$ ). Managers are thus confronted with a choice between reporting an earnings decrease or enhancing earnings with the help of accounting accruals. However, earnings management provides only a temporary solution. In the following year ( $0/+1$ ), managers are forced to report an earnings decrease as recovering cash flows are insufficient to offset the unavoidable reversal of accounting accruals. This implies that the effect of accrual-based earnings management is transitory. This is consistent with the findings of Bradshaw, Richardson, and Sloan (1999), that U.S. listed firms with unusually high current accruals are more susceptible to declines in subsequent earnings performance. We also investigate the behavior of provisions over time. As argued in Section 2, Dutch companies can exercise a great amount of discretion over provisions compared to companies in other countries. Although provisions are less useful to manage short-term earnings than current accruals, we find that managers do use provisions to increase net income in the post-IPO years ( $0/+1$ ) and ( $+1/+2$ ). In particular, managers reduce provisions in these 2 years by 1.2% of average total assets in an attempt to partially mitigate the effects of the reversal of current accruals on net income in year ( $0/+1$ ).



Table 3

Changes in net income, cash flow from operations, current accruals and provisions over time

	Year (– 2/– 1)	Year (– 1/0)	Year (0/+ 1)	Year (+ 1/+ 2)	Year (+ 2/+ 3)
<i>Panel A: Net income</i>					
Mean	4.33	– 0.25	– 4.29	– 0.15	– 0.49
<i>t</i> value	2.74 <sup>a</sup>	– 0.39	– 2.80 <sup>a</sup>	– 0.12	– 0.83
Median	1.81	0.19	– 0.88	– 0.17	– 0.24
<i>z</i> value	4.78 <sup>a</sup>	0.09	– 2.94 <sup>a</sup>	– 1.18	– 0.60
Standard deviation	11.48	4.96	11.97	9.61	4.35
Maximum	79.69	12.87	33.31	43.89	9.58
Minimum	– 9.81	– 25.71	– 52.52	– 23.31	– 15.78
<i>Panel B: Cash flows</i>					
Mean	3.45	– 6.59	2.25	– 1.18	– 1.56
<i>t</i> value	1.44	– 2.23 <sup>b</sup>	1.02	– 0.68	– 0.99
Median	2.30	– 3.30	2.17	– 0.37	– 1.17
<i>z</i> value	1.46	– 1.96 <sup>b</sup>	1.04	– 0.83	– 1.28
Standard deviation	17.49	23.03	17.24	13.33	11.63
Maximum	51.80	36.35	64.85	37.05	45.29
Minimum	– 35.66	– 80.20	– 48.26	– 52.97	– 27.09
<i>Panel C: Current accruals</i>					
Mean	0.51	6.10	– 6.19	1.26	1.38
<i>t</i> value	0.21	2.04 <sup>b</sup>	– 2.77 <sup>a</sup>	0.68	0.86
Median	0.53	4.54	– 3.70	1.11	1.80
<i>z</i> value	0.36	1.95 <sup>c</sup>	– 2.59 <sup>a</sup>	0.45	1.54
Standard deviation	17.49	23.35	17.47	14.37	11.95
Maximum	39.47	88.70	30.81	53.72	27.50
Minimum	– 42.75	– 34.95	– 75.25	– 33.54	– 57.08
<i>Panel D: Provisions</i>					
Mean	0.19	– 0.06	– 0.40	– 0.83	0.52
<i>t</i> value	0.54	– 0.20	– 1.18	– 2.24 <sup>b</sup>	1.27
Median	0.00	– 0.22	– 0.59	– 0.35	– 0.09
<i>z</i> value	0.01	1.08	– 2.92 <sup>a</sup>	2.71 <sup>a</sup>	0.19
Standard deviation	2.59	2.21	2.63	2.82	3.05
Maximum	7.19	8.08	10.14	6.24	10.75
Minimum	– 5.17	– 4.89	– 4.62	– 13.17	– 3.98
Number of observations	53	61	61	59	55

This table reports on the mean, median, standard deviation, maximum and minimum of changes in net income, cash flows from operations, current accruals, and provisions. Provisions include maintenance provisions, warranties provisions, pension provisions, taxation provisions, and provisions for reorganization. All values are expressed as a percentage of average total assets. We employ the DeAngelo (1986) method. The year of the IPO is labeled year (0).

<sup>a</sup> Indicates significance at the 1% level, using the parametric *t* test for the means and the Wilcoxon signed-ranks test for the medians.

<sup>b</sup> Indicates significance at the 5% level, using the parametric *t* test for the means and the Wilcoxon signed-ranks test for the medians.

<sup>c</sup> Indicates significance at the 10% level, using the parametric *t* test for the means and the Wilcoxon signed-ranks test for the medians.

## 7. Long-run stock price performance

Section 3 argues that managers are unlikely to be able to support the inflated earnings numbers indefinitely and therefore firms that make extensive use of accruals are likely to be the ones that perform the worst. We measure long-run stock price performance as discussed in Section 5.2. To test Hypothesis 2, the sample of 64 IPOs is split into three groups. Given that earnings management in our sample takes place in year (0) (i.e., the first year as a public company), we use current discretionary accruals from this year as the cutoff variable to form three equal-sized groups (top tier, middle tier, and bottom tier). We measure stock returns for a period of 3 years after the publication of the first annual report as a public company. Panel A of Table 4 shows the BHARs when we use the level of DCA using the Jones (1991) method for forming our three groups.<sup>15</sup> Consistent with the second hypothesis, the long-run underperformance of IPOs is largely centered in the top-tier group of 22 IPO firms with the highest use of DCA in year (0). Depending on the benchmark used, the average long-run stock price performance of the top tier group ranges from  $-36.5\%$  to  $-57.1\%$ . The median long-run stock price performance ranges from  $-50.9\%$  to  $-71.2\%$ . This shows that the underperformance of the top-tier group is not due to a few outliers or the choice of benchmark. The bottom-tier group does not experience any significant underperformance. The average long-run stock price performance of this group varies from  $+0.1\%$  to  $-23.2\%$ . These long-run returns are not significantly different from zero. We also use the DCA using the DeAngelo (1986) method for forming three equal groups (top tier, middle tier, bottom tier). Results are shown in Panel B of Table 4. Again, we find that the top-tier group, with the highest positive change in current accruals in the first year as a public company ( $-1/0$ ), has the worst stock price performance. The bottom-tier group, with lowest positive change in current accruals in the first year as a public company ( $-1/0$ ), shows substantially less stock return underperformance. Overall, our results show that using accruals to increase short-run earnings leads to long-run stock price underperformance.

To further analyze the relation between earnings management and long-run stock price performance, we have estimated cross-sectional regressions. We use the BHARs from month 0 through month 36 as the dependent variable. To correct for size effects, the natural logarithm of the initial market capitalization ( $\ln \text{SIZE}$ ) is included. *ISSUE* refers to a dummy variable indicating whether the IPO firm raises any funds at the IPO by selling newly issued shares. We include the natural logarithm of one plus company age [ $\ln(1 + \text{AGE})$ ] to control for differences in ex ante risk. Two industry dummies (*IND1* and *IND2*) are incorporated to control for industry effects related to technology and manufacturing. To control for time effects, the regression model features a set of year dummies. The model is specified as:

$$\text{BHAR}_{0,36,i} = \beta_0 + \beta_1 \text{DCA}_i + \beta_2 \ln \text{SIZE}_i + \beta_3 \text{ISSUE}_i + \beta_4 \ln(1 + \text{AGE})_i + \beta_5 \text{IND1}_i + \beta_6 \text{IND2}_i + \text{year} - \text{dummies} + \varepsilon_i \quad (6)$$

<sup>15</sup> Depending on the benchmark used, the average long-term stock price performance for all 64 IPO firms ranges from  $-13\%$  to  $-30\%$ . This compares to the negative stock-returns found for U.S. and U.K. IPOs. Espenlaub, Gregory, and Tonks (2000) report 3-year stock price performance of  $-8\%$  to  $-28\%$  for U.K. IPOs, while Ritter (1991) reports underperformance of up to  $-29\%$  over the first 3 years for U.S. IPOs.



Panel A of Table 5 shows the results when we measure DCA using the Jones (1991) method. We find that the estimated coefficient for the change in current accruals is significantly negative across all specifications. Using a two-tailed  $t$  test, the coefficient on the DCA is significant at the 10% level. Given that we have a specific prediction of the relationship between long-run stock price performance and earnings management, we also assess significance using the one-tailed  $t$  test. Using the one-tailed  $t$  test, the coefficient on the DCA is significant at the 5% level or better. In particular, a one standard deviation increase in the change in current accruals is associated with a decrease in  $BHAR_{0,36}$  of 15.8% when using the size-adjusted returns and 27.5% when using the value-weighted market index adjusted returns as a benchmark. Panel B shows the results using the change in current accruals from year  $(-1)$  to year  $(0)$  from the DeAngelo (1986) method as our alternative measure of earnings management. Again, we observe that the estimated coefficient on the DCA is significantly negative for all specifications. The significance level is at 10% or better using the two-tailed  $t$  test and at 5% or better using the two-tailed  $t$  test. A one standard deviation increase in the change in current accruals is associated with a decrease in  $BHAR_{0,36}$  of 10.7% when using the size-adjusted returns and 23.6% when using the value-weighted market index adjusted returns as a benchmark. Overall, the regression results support Hypothesis 2.

In unreported tests, we also examine the relation between the buy-and-hold returns for shorter intervals (12 and 24 months). It is difficult for investors to exactly distinguish between the motivation underlying earnings management *ex ante*, especially given the lack of historical financial information about the IPO firm. When do investors incorporate the information about discretionary accruals in the stock price? Using the Jones (1991) method, we find that initially there exists no significant relation between the size of the DCA in the IPO year and the returns during the first 12 months after the first annual report as a public company becomes available, but the measure of DCA is significantly related to 24 and 36 months returns. At that time, the accrual reversal has occurred and investors have identified poorly performing firms for which cash flows have not sufficiently recovered. These results show that it takes some time before investors incorporate the information about earnings management in year  $(0)$  into stock prices.<sup>16</sup>

<sup>16</sup> Discretionary accruals can also be used to smooth income over time and signal firm quality to the market (Chaney & Lewis, 1995, 1998). This makes it difficult for investors to at first determine whether a high use of discretionary accruals in the IPO year is bad. However, time will catch up with poor-quality firms that have used earnings management in the IPO year. They have borrowed from future income, and their cash flows do not improve sufficiently to undo the negative effect of the reversal of accruals on net income. As a result they report an earnings decline. This would allow investors to distinguish between good- and poor-quality earnings managers. A preliminary analysis shows that earnings management in that year is not significantly associated with income smoothing. We use the income smoothing index, developed by Chaney and Lewis (1998) to *ex post* determine whether the firm has smoothened income over time. We find that there is no significant correlation ( $-.03$ ) between income smoothing and the use of discretionary accruals in the IPO year using the cross-sectional Jones (1991) model. This suggests that income smoothing is, on average, not a major motivation for firms to manage earnings in the IPO year in our sample.



Table 4  
Long-run returns and earnings management

	Top tier	Middle tier	Bottom tier
<i>Panel A: measuring earnings management using the Jones (1991) model</i>			
VW market adjusted BHAR (%)			
Mean	– 36.50	– 1.78	0.10
<i>t</i> value	– 1.74 <sup>c</sup>	– 0.08	0.01
Median	– 50.91	– 18.08	17.69
<i>z</i> value	– 2.66 <sup>a</sup>	– 0.31	0.21
EW market adjusted BHAR (%)			
Mean	– 57.04	– 10.57	– 23.15
<i>t</i> value	– 2.77 <sup>b</sup>	– 0.57	– 1.25
Median	– 71.23	– 21.48	– 29.30
<i>z</i> value	– 2.92 <sup>a</sup>	– 0.63	– 1.59
Book-to-market adjusted BHAR (%)			
Mean	– 43.97	5.09	– 10.13
<i>t</i> value	– 2.14 <sup>b</sup>	0.27	– 0.51
Median	– 59.37	– 4.93	– 20.47
<i>z</i> value	– 2.69 <sup>a</sup>	– 0.28	– 0.73
Size adjusted BHAR (%)			
Mean	– 50.70	– 18.11	– 20.35
<i>t</i> value	– 2.28 <sup>b</sup>	– 0.96	– 1.03
Median	– 61.21	– 10.05	– 32.00
<i>z</i> value	– 2.69 <sup>a</sup>	– 0.87	– 0.90
Number of observations	22	21	21
<i>Panel B: Measuring earnings management using the DeAngelo (1986) model</i>			
VW market adjusted BHAR (%)			
Mean	– 34.13	4.92	3.20
<i>t</i> value	– 1.55	0.190	0.18
Median	– 59.70	– 12.93	17.69
<i>z</i> value	– 2.21 <sup>b</sup>	0.00	0.07
EW market adjusted BHAR (%)			
Mean	– 54.56	– 5.07	– 17.44
<i>t</i> value	– 2.69 <sup>b</sup>	– 0.22	– 1.08
Median	– 68.37	– 4.08	– 16.23
<i>z</i> value	– 2.61 <sup>a</sup>	– 0.35	– 0.97
Book-to-market adjusted BHAR (%)			
Mean	– 36.03	– 3.68	2.49
<i>t</i> value	– 1.74 <sup>c</sup>	– 0.16	0.14
Median	– 36.02	– 17.16	16.74
<i>z</i> value	– 2.18 <sup>b</sup>	– 0.39	0.03
Size adjusted BHAR (%)			
Mean	– 51.27	– 6.71	– 14.13
<i>t</i> value	– 2.37 <sup>b</sup>	– 0.30	– 0.83
Median	– 63.90	– 2.16	7.50
<i>z</i> value	– 2.82 <sup>a</sup>	– 0.39	0.45
Number of observations	22	18	21

In the initial 24-month period [i.e., the time when the second annual report as a public company becomes available in year (1)], the size of the DCA in the IPO year is significantly and negatively related to stock price performance. We argue that investors get a better idea about the motivation behind earnings management when they observe the sudden decline in net income at the poorly performing companies that have resorted to earnings management in the year before. As a final point, we investigate the relation between 3-year BHARs and the change in provisions from year (–1) to year (0). In unreported tests, we do not find a statistically significant relation between the change in provisions and long-term returns.

## 8. Robustness checks

We conduct several checks for robustness. For reasons of brevity, these results are not tabulated. First, we re-weight the sample in order to exclude outliers. The re-weighting procedure involves truncating the distribution of current accruals at the 5th and 95th percentiles. Our analysis yields qualitatively similar results. A second sensitivity test relates to the robustness of our proxy for earnings management. Notwithstanding the arguments in favor of current accruals, we also extended our analysis to include depreciation. However, the estimated discretionary long-term accruals amounted to only 0.22% in the fiscal year surrounding the IPO ( $t$  value = 1.243). Hence, current accruals seem to be more important than depreciation for earnings management.

Third, we examine whether the type of auditor used by the IPO firm reduces the information asymmetry problem between management and investors. We distinguish between high-reputation auditors (KPMG, Moret Ernst & Young, Deloitte & Touche, and PricewaterhouseCoopers) and other auditors. We find that the average DCA in year (0), using the Jones (1991) model, equals 3.5% for 41 IPO firms with high-reputation auditors compared to 11.9% for 23 IPO firms with other auditors ( $t$  value for difference = 2.42). High-reputation auditors may therefore limit the excessive use of

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### Notes to Table 4:

This table shows the BHARs, in percentages, using four different benchmarks. We split the sample into three equal groups using the level of discretionary current accruals in year (0) in Panel A and changes in current accruals from year (–1) to year (0) as a cutoff variable in Panel B. The cutoff points thus correspond to the 33.33 percentile and 66.67 percentile of the distribution of the cutoff variable. In Panel A, DCA are measured using the cross-sectional Jones (1991) model. In Panel B, we use the DeAngelo (1986) method. BHARs capture the total return from a buy-and-hold strategy where a stock is purchased at the closing price in month 0 and held until (i) 36 months, or (ii) its *Het Financieele Dagblad* delisting date, whichever comes first. The table reports the means and median values.

<sup>a</sup> Indicates significance at the 1% level, using the parametric  $t$  test for the means and the Wilcoxon signed-ranks test for the medians.

<sup>b</sup> Indicates significance at the 5% level, using the parametric  $t$  test for the means and the Wilcoxon signed-ranks test for the medians.

<sup>c</sup> Indicates significance at the 10% level, using the parametric  $t$  test for the means and the Wilcoxon signed-ranks test for the medians.

accruals by IPO firms. We also included a dummy variable for high auditor reputation in the long-run return regressions. However, we find that this dummy is insignificant across all specifications.

Neill et al. (1995) show that accounting method choice can also be used to increase earnings. As a final robustness check, we also investigate two typical accounting policy choices available to Dutch firms. We first examine the choice between historical and current cost accounting. We find that 15 firms apply current cost accounting. When a firm uses current cost accounting to value fixed assets, depreciation charges are increased, which in turn reduces net income. We therefore expect firms in the top-tier group of DCA to use current cost accounting less often. Accordingly, we find that four IPO firms (18.2%) in the

Table 5  
Cross-sectional regression results for earnings management

Independent variables	Dependent variable			
	VW market adjusted BHAR	EW market adjusted BHAR	Book-to-market adjusted BHAR	Size adjusted BHAR
<i>Panel A: Measuring earnings management using the Jones (1991) model</i>				
Intercept	4.771 (2.788) <sup>a</sup>	1.443 (0.923)	2.758 (1.739) <sup>c</sup>	1.193 (0.767)
Discretionary accruals	– 1.994 (– 1.989) <sup>b</sup>	– 1.422 (– 1.678) <sup>c</sup>	– 1.860 (– 1.823) <sup>c</sup>	– 1.146 (– 1.716) <sup>c</sup>
Initial market capitalization	– 0.271 (– 3.232) <sup>a</sup>	– 0.117 (– 1.515)	– 0.172 (– 2.256) <sup>b</sup>	– 0.104 (– 1.373)
Issuing dummy	0.188 (0.809)	0.310 (1.498)	0.243 (1.122)	0.345 (1.577)
Company age	0.100 (0.878)	0.146 (1.509)	0.137 (1.317)	0.146 (1.408)
Technology dummy	– 0.164 (– 0.451)	– 0.371 (– 1.044)	– 0.223 (– 0.643)	– 0.424 (– 1.114)
Manufacturing dummy	– 0.194 (– 0.757)	– 0.026 (– 0.110)	– 0.207 (– 0.831)	– 0.058 (– 0.244)
Adjusted R <sup>2</sup>	.365	.253	.272	.255
F value	3.261 <sup>a</sup>	2.332 <sup>b</sup>	2.474 <sup>a</sup>	2.350 <sup>b</sup>
<i>Panel B: Measuring earnings management using the DeAngelo (1986) model</i>				
Intercept	5.085 (2.613) <sup>b</sup>	1.795 (1.008)	3.286 (1.927) <sup>c</sup>	1.571 (0.916)
Discretionary accruals	– 1.010 (– 1.722) <sup>c</sup>	– 0.663 (– 1.732) <sup>c</sup>	– 0.971 (– 1.699) <sup>c</sup>	– 0.458 (– 1.695) <sup>c</sup>
Initial market capitalization	– 0.282 (– 2.775) <sup>a</sup>	– 0.130 (– 1.399)	– 0.194 (– 2.193) <sup>b</sup>	– 0.112 (– 1.239)
Issuing dummy	0.105 (0.439)	0.239 (1.132)	0.149 (0.671)	0.263 (1.228)
Company age	0.075 (0.603)	0.124 (1.152)	0.112 (1.000)	– 0.091 (– 0.861)
Technology dummy	– 0.296 (– 0.779)	– 0.460 (– 1.274)	– 0.345 (– 0.982)	– 0.538 (– 1.390)
Manufacturing dummy	– 0.192 (– 0.698)	– 0.021 (– 0.081)	– 0.212 (– 0.794)	– 0.020 (– 0.079)
Adjusted R <sup>2</sup>	.364	.242	.284	.234
F value	3.145 <sup>a</sup>	2.196 <sup>b</sup>	2.488 <sup>a</sup>	2.145 <sup>b</sup>



top-tier group use current cost accounting versus five IPO firms (23.8%) in the middle-tier group and six IPO firms (28.6%) in the bottom-tier group.

Second, we investigate the accounting treatment of share issue costs. Dutch companies can choose between charging share issue costs against owner's equity (i.e., profits are not affected in the current and future years) or expensing these share issue costs immediately in year (0), i.e., the year of the IPO. We expect firms in the top-tier group to charge share issue costs against owner's equity more often to avoid the reduction of net income in year (0). We find that six IPO firms (27.3%) of the top-tier group charge share issuing costs against owner's equity versus four IPO firms (19%) of the middle-tier group and three IPO firms (14.3%) of the bottom-tier group. Although none of these differences are statistically significant, it provides suggestive evidence that firms in the top-tier group use more income-increasing accounting policies than firms in the middle-tier and bottom-tier group. We interpret this as evidence that the estimate of DCA works reasonably well in identifying those firms with intent to overreport.

## 9. Conclusions

This study has examined the role of discretionary accruals in the Dutch IPO market. We show that the average IPO firm resorts to accruals-based earnings management in the first year as a public company and not in the years before the IPO. In post-IPO years, managers reduce provisions in an attempt to mitigate the negative effect of the reversal of current accruals on reported net income. This is consistent with earlier findings of U.S.-based research. Aharony et al. (1993) find little, if any, evidence of IPO firms in the United States using income-increasing discretionary accruals in the years before the IPO. Teoh et al. (1998) also document earnings manipulation in the first year as a public company.

### Notes to Table 5:

This table shows the results for the cross-sectional regression model  $BHAR_i = \beta_0 + \beta_1 DCA_i + \beta_2 \ln SIZE_i + \beta_3 ISSUE_i + \beta_4 \ln(1 + AGE)_i + \beta_5 IND1_i + \beta_6 IND2_i + \text{year dummies} + \varepsilon_i$ . The dependent variable  $BHAR_i$  is the buy-and-hold abnormal return, measured from month 0 to its 3-year anniversary or its *Het Financieele Dagblad* delisting date, whichever comes first.  $DCA_i$  denotes the discretionary current accruals in the IPO year (0) according to the cross-sectional Jones (1991) model in Panel A and the DeAngelo (1986) method in Panel B.  $\ln SIZE_i$  is the natural logarithm of the initial market capitalization, measured as the number of postoffering shares multiplied by the closing price on the first day of trade.  $ISSUE_i$  is a 0,1 dummy variable that equals 1 if the IPO firm raises funds at the IPO.  $\ln(1 + AGE)_i$  is the natural logarithm of one plus company age.  $IND1_i$  is a 0,1 dummy variable coded 1 if a technology firm, 0 otherwise.  $IND2_i$  is a 0,1 dummy variable coded 1 if an industrial firm, 0 otherwise. A complete set of year dummies is included yet not reported. The year dummies refer to the historic calendar years of going public; 1984, 1985, etc. In parentheses are the  $t$  statistics using White (1980) heteroscedastic-consistent standard errors.

In Panel A, the number of observations equals 64. In Panel B, the number of observations equals 61.

<sup>a</sup> Significance at the 1% level (two-tailed test).

<sup>b</sup> Significance at the 5% level (two-tailed test).

<sup>c</sup> Significance at the 10% level (two-tailed test).

Our results are robust to a number of additional tests. For example, we find that our measures of earnings management to some extent correlate with the use of income-increasing accounting policies.

We document that IPO firms, which managers tend to overreport earnings in the first year as a public company, subsequently suffer poor returns. When regressing buy-and-hold returns on discretionary accruals, the estimated coefficient of discretionary accruals is statistically negative across different specifications. This adds Dutch evidence to the findings of Teoh et al. (1998), who show that the aftermarket performance of U.S. IPOs is negatively related to the size of discretionary accruals in the IPO year.

Barberis et al. (1998) argue that investors naively extrapolate the growing trend in earnings, resulting in overvaluations in the short run. Because earnings follow a random walk, such overreaction is exposed by future earnings, leading to the reversal of long-term returns. Our results are consistent with their model of investor sentiment. On average, IPOs experience an adverse cash flow change in their first year as a public company. These IPO firms can choose between reporting an earnings decrease or an earnings increase with the help of accounting accruals. If firms choose to do the latter, they face long-term costs. Since current accruals tend to reverse in the future, they are betting that future cash flows will improve. However, on average, cash flows do not improve sufficiently in the following year to offset the reversal of current accruals for the average IPO firm. In the following year, especially poor-quality IPO firms are forced to reflect the unavoidable reversal of current accruals in their earnings number. The detection of earnings management leads outside investors to downwardly adjust their valuation of IPO firms that engage in accrual-based earnings management.

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## Appendix A. Benchmark formation

Whereas the value-weighted market index (CBS total-return general-price index) was available from *Datastream*, the latter three benchmarks were computed following the procedure outlined in Barber and Lyon (1997). To do so, we took universe of all stocks which at any point in time were trading at Euronext Amsterdam from January 1984 through June 1998 and who did not have an IPO in the previous 5 years. For each firm, monthly



returns data were collected from *Datastream*, including both capital gains and dividends (assumed to be reinvested in the same stock at ex-dividend date). So as to derive the equally market index, we computed an equally weighted average of monthly stock returns during each of the months in the aforementioned time period. In order to determine size benchmark portfolios, we used the same universe of stocks and measured each firm's size in June of each year as the market value of common equity (common shares outstanding multiplied by the June closing price). Size rankings based on market value in year  $t$  were then used from July of year  $t$  through June of year  $t+1$ . Subsequently, non-IPO firms were sorted in their appropriate size quintile based on their size. We then calculated the monthly return, including both capital gains and dividends, for each of the five size portfolios, by averaging monthly returns across all securities in a particular size quintile (about 20 firms in each quintile). Since we rank firms in June each year, firms are allowed to change size quintiles at the beginning of June each year when new portfolio assignments are available. As a final step, each IPO firm is then matched with its appropriate size quintile in June every year. The returns on the five book-to-market portfolios were calculated analogous to the five size portfolios. We measured a firm's book-to-market ratio using the book value of common equity reported on the balance sheet at fiscal year-end divided by the market value of common equity at calendar year-end. We used the most recent fiscal year-end book value of equity, as long as it was no later than the calendar year-end. Again, rankings based on book-to-market ratios are used from July of each year  $t$  through June of year  $t+1$ . The calculation of book-to-market ratios antedates their use for ranking purposes by several months to allow for delays in the reporting of annual accounts.

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## Using client performance measures to identify pre-engagement factors associated with qualified audit reports in Greece

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### Abstract

The purpose of this paper is to test the extent to which client (corporate) performance measures can be used to enhance the ability to discriminate between the choice of a qualified or unqualified (clean) audit report. Audit firms face the risk of losing the client if they issue a qualification. On the other hand, failing to qualify exposes the auditor to potential lawsuits and loss of reputation. We examined the financial statements, auditors' opinions, and financial statements notes for companies in Greece that received a qualified audit report and for those that received an unqualified audit report. We modeled the auditor's qualification using a multicriteria decision aid classification method (UTADIS—UTILités Additives Discriminates) and compared it with other multivariate statistical techniques such as discriminant and logit analysis. The qualification decision is explained by financial ratios and by nonfinancial information such as the client litigation. The developed models are accurate in classifying the total sample correctly with rates of almost 80%.

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*Keywords:* Qualified audit report; Financial statements; Multicriteria decision aid; Performance measures; Greece

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## 1. Introduction

References to qualified audit reports have increased in frequency over the last few years. All European Union (EU) member states have some type of corporate legislation that prescribes the form and content of the auditors' annual reports. The way in which professional standards are applied, however, has an impact on both the form and content of the audit report. Greece, as a member of the EU, applies the Fourth Directive on Company Law, which imposes the requirement of giving "a true and fair view" on financial reporting. Two components should be present in the annual reports from companies within the EU. First, the financial accounting framework used in the preparation and presentation of the financial information should be consistent with the concept of true and fair view. Second, the auditor's report should include an expression of opinion on whether the financial statements give a true and fair view.

The qualification of financial statements as well as the detection of falsified financial statements have been recently in the limelight in Greece because of the increase in the number of companies listed on the Athens Stock Exchange (and raising capital through public offerings) and the attempts to reduce taxation on profits. The years 2000–2002 were very difficult for the Greek stock market; the stock market in Greece suffered from stagnation both in terms of share prices and liquidity. The market's decline along with the increase in the number of qualified audit reports has piqued the interest of regulators, Stock Market authorities, the Ministry of the Economy, individual and institutional investors, and the banking sector. In Greece, the public has been consistent in its demand for qualified opinions as warning signals of business failure. There is increasing demand for greater transparency, consistency, and more information to be incorporated in the financial statements. The increasing demand and the absence of studies for audit opinions in Greece motivated us to consider the Greek case.

The focus of this study is the development of models that consider client performance measures, including financial information and other indicators such as client litigation, to explain qualifications of audit reports of publicly traded Greek companies. Researchers can use empirical models to assess the extent to which a qualification could be expected based on publicly available data (Dopouch, Holthausen, & Leftwich, 1987). The outcomes of such models are an estimation of the likelihood of a company receiving a qualified opinion. Bell and Tabor (1991), as well as Chen and Church (1992), note that auditors can use the output of such models to plan specific auditing procedures that can be applied to achieve an acceptable level of audit risk. These models can also be used as a quality control tool in the review or final stage of an engagement and for contingency analyses on how changes in specific variables could add or detract from the probability of obtaining a qualified opinion (Kleinman & Anandarajan, 1999). Our approach also examines the extent to which auditors' opinion is affected by the performance of the firms. The analysis in this paper is based on a nonparametric multicriteria decision aid classification method, the UTADIS (UTilités Additives Discriminates) method (Zopounidis & Doumpos, 1999). The use of nonparametric classification techniques (e.g., neural networks, mathematical programming, machine learning, fuzzy sets, rough sets, etc.) in business, finance, and accounting has rapidly increased during the past 20 years (Duda, Hart, & Stork, 2001; Gehrlein & Wagner, 1997; Zopounidis



& Doumpos, 2002), mainly due to their flexibility with regard to the model development process and the form of the models developed.

The analysis, using UTADIS, focuses on two main issues: (1) investigate the relationship between client performance measures and the auditors' qualification decisions; and (2) investigate the performance of the resulting classification that is, detecting firms that receive qualified reports in comparison with models developed using linear discriminant analysis (LDA) and logistic regression (LOGIT). The results indicate that there is negative relationship between client performance measures and the likelihood that a firm receives a qualified audit report; high performance (healthy) firms are more likely to receive a nonqualified (clean) report compared to low performance firms. Furthermore, an extensive bootstrapping experiment shows that models developed using the UTADIS methodology provide superior classification performance (predictive ability) as compared to traditional statistical classification models. This result suggests that the classification models of the UTADIS method are able to explain more accurately the auditors' decisions to qualify their reports. The UTADIS method was also used in an earlier study (Spathis, Doumpos, & Zopounidis, 2002) to model detection of management fraud related to the falsification of financial statements (FFS) in Greece. Using a random sample of 76 Greek firms (a different sample from the one used in the present study), a Jackknife analysis for model validation was performed and a strong relationship was found between FFS and the financial characteristics of the firms. In particular, the ratios of total debt to total assets, inventories to sales, net profit to sales, and sales to total assets were found to be strong predictors of FFS. The present study complements the earlier one on FFS detection, thus contributing to an integrated analysis of the accounting practice in Greece covering the analysis of audit reports and the detection of FFS.

The remainder of this paper is organized as follows: The next section reviews previous research on qualified audit reports. Section 3 outlines the method and the sample data used in the study. Section 4 describes the empirical results. Finally, the Section 5 provides the concluding remarks.

## **2. Previous research**

### *2.1. Audit qualification opinion*

Several models have been developed to explain qualifications of audit reports. The general consensus of these models has been that financial and nonfinancial factors affect the audit opinion decision. Dopouch et al. (1987) developed a probit model to investigate the extent to which models based on financial and market variables predict auditors' decisions to issue qualified audit reports. Their results showed that the most significant variables in qualification prediction are current year loss, industry rate of return, and the change in the ratio of total liabilities to total assets. Keasey, Watson, and Wynarczyk (1988) used logistic regression based on 12 financial and nonfinancial variables to explain audit-report qualification for small companies. They showed that the likelihood that a company receives a qualified audit report increases if (a) a large accounting firm audits the company; (b) the company has few directors;

(c) few nondirector shareholders; (d) a secured loan; and (e) if there was a long lag between the auditing year-end and the signing of audited accounts.

Krishnan and Krishnan (1996) considered audit opinion models by incorporating economic tradeoffs that arise in the auditor's litigation risk, the extent of outsider ownership, the relative importance of the client in the auditor's portfolio, and future growth as important factors in the audit opinion decision. In modeling the auditor's opinion decision for financially distressed companies, Mutchler, Hopwood, and McKeown (1997) concluded that qualitative variables involving good and bad news items had no incremental explanatory power relative to financial variables. Laitinen and Laitinen (1998) used logistic regression analysis based on 17 financial and nonfinancial variables to explain qualifications in large companies in Finland. Their results showed that the likelihood of receiving a qualified audit report is higher with low growth rate, low equity/total assets, and small number of employees.

Casterella, Lewis, and Walker (2000) developed an opinion prediction model introducing a bankruptcy resolution variable, a proxy of the auditor's prognosis of the ultimate disposition of the soon-to-be-bankrupt company. They found that auditors are less able to predict either bankruptcy filing or resolution. The model suggests that auditors are less likely to issue a modified opinion when the financial prospects of the company are not clear and when auditors are faced with incentives to delay or avoid issuing a modified opinion. Some studies on auditor's going-concern assessment have also focused on hybrid approaches such as those used in Lenard, Alam, Booth, and Madey (2001). They combined a decision support system with a statistical model that predicts bankruptcy as a component of the auditor's decision to show that bankruptcy prediction is an important component of the going-concern decision. Arnold, Collier, Leech, and Sutton (2001) present a theoretical framework of the audit decision process that consists of four broad-based components within the overall audit environment: (a) the auditor, (b) evidence gathering and analysis, (c) auditor/audited contracting, and (d) social contracting. Finally, Reynolds and Francis (2001) found that Big Five auditors do not treat large clients more favorably than smaller firms.

Most prior studies used qualitative variable(s) in developing audit opinion models. However, qualitative indicators of potential solvency problems indicate bad news characteristics such as client litigation. While Kida (1980), LaSalle, Anandarajan, and Miller (1996), and Mutchler, Hopwood, and McKeown (1997) argue that this type of specific information cues may not necessarily be sufficient to trigger the qualified audit report, and may cause the auditor to focus more extensively on whether a qualified report should be issued.

## *2.2. Client litigation*

The effects of client (firm) litigation on the type of audit opinion have not been considered but disclosure issues have been examined. Skinner (1997) provides evidence on whether managers can reduce stockholder litigation costs by disclosing adverse earnings news early. He found that voluntary disclosure occurred more frequently in quarters that result in litigation than in quarters that did not. Managers' incentives to predisclose earnings news increased as the news became more adverse, presumably because of the expected reduction in the cost of resolving litigation. Hughes and Sankar (1997) analyzed the impact of expected litigation-



related costs on discretionary disclosure. Using data from lawsuits, Karpof and Lott (1998) found that press coverage of punitive lawsuits led to statistically significant decreases in the market values of defendant companies. Johnson, Kasznik, and Nelson (2001) provided direct evidence on the relation between the legal environment and voluntary disclosure of good news in high-technology industries. Evans and Shridar (2002) found that under certain circumstances potential shareholder litigation can interact with the influences of capital and product markets to make voluntary disclosures more credible.

### 2.3. *Greek auditor's report*

The accounting and auditing standards in Greece represent a blend of governmental and professional involvement. The codified Roman law system is a more rigid system and may impact auditing characteristics by requiring more reliance on the stated legal objectives of the auditing profession. The accounting standards are closely related to taxation and corporate legislation. In particular, accounting standards are based mainly on established corporate laws; the standards were established by the Ministry of National Economy, the interpretations were issued by the National Accounting Standards Board (ESYL) and the Greek General Chart of Accounts (Institute of Certified Auditors of Greece, 1999). Greek accounting standards differ from the International Accounting Standards (IAS) due to the absence of specific rules on recognition and measurement. Recently, the European Commission ruled that all companies operating within EU prepare their consolidated financial statements in accordance with IAS from 2005 onward. Therefore, accounting standards in Greece will soon comply with those of IAS. In addition, the European Commission's fourth directive and the increase in global capital market activity are expected to increase harmonization in auditors' reports. Greek auditors' reports to this point have been harmonized *de jure* and *de facto* with International Standard on Auditing (ISA) 13. Greece is also influenced by both the United States and the EU with regard to the form and content of auditors' reports.

The auditing standards that are being applied by certified auditors have been published in the Official Government's Gazette (the issue 1119/B/18.12.1979 specified the basic standards and fieldwork standards, while the issue 126/B/5.3.1993 specified the Auditor's report standards). The auditor's report on the annual financial statements is addressed to the entity's SA shareholders (e.g., audit assignors). The auditor's report contains:

- (a) Identification of audited and attested financial statements.
- (b) Compliance with the provisions of article 37, Law 2190/20 and the auditing procedures considered appropriate within the framework of auditing principles and policies.
- (c) Specific information and confirmations as required by the existing legislation.
- (d) Any observations (notes) on the part of the auditor on material matters taken into account by the auditor to support his conclusions, whenever these contain some qualification, adverse opinion, or disclaimer of opinion.
- (e) The auditor's opinion on the financial statements.
- (f) Any necessary clarifications on the part of the auditor.
- (g) Place and date of the report, with full name and signature of the issuing auditor/s.



In addition, existing legislation required that the auditor's report refer to:

- (a) Information necessary for the audit.
- (b) Knowledge of full accounting reports of entity branches.
- (c) Appropriate accounting for production cost.
- (d) Application of the appropriate accounting plan.
- (e) Modification of valuation method as related to the preceding financial year.
- (f) Verification on consistency between the contents of the director's report and the relevant financial statements.
- (g) Information contained in the notes on the accounts.

The auditor qualifies his audit report whenever he thinks that one of the following circumstances is concurrent: (a) there exists material influence on specific items or on the overall picture of the financial statement attested, and (b) there has been a limitation in his possibility to formulate a sufficient opinion on one or more items and other disclosures that are included, or should have been included in the financial statement attested. In the opinion paragraph of the report, the auditor expresses with clarity his professional opinion that is classified as: (a) unqualified, (b) qualified, (c) adverse, or (d) disclaimer of opinion. The incidents of adverse opinion and disclaimer of opinion are rare. On the other hand, empirical evidence obtained from certified auditors in Greece indicates that about 50% of the firms receive qualified reports. While this figure is surprisingly high, it should be emphasized that until recently audit reports in Greece were not given much attention and consequently firms did not have any major motivation for preparing appropriate financial reporting. Recently, the attention paid to audit reports has increased, and consequently, the number of firms that receive qualified reports is soon expected to decrease.

### **3. Methodology**

#### *3.1. Sample*

The sample used in this analysis involves 100 Greek firms. Certified auditors have checked all the companies included in the sample. All public limited companies (societies anonyms) and limited liability companies are obliged to submit to a certified auditor's control when they fulfill two of the following three criteria: (a) total revenues are over € 2.9 million, (b) total assets are over € 1.5 million, and (c) the average number of employees is over 50 (Caramanis, 1997).

According to data availability over the past few years (1997–1999), 50 firms were included in the sample having received qualifications such as the ones noted in Table 1. The number of qualified opinions over the period of analysis is: 12 for 1997, 18 for 1998, and 20 for 1999. Qualifications can be characterized based on inappropriate accounting method, inadequate disclosure, and scope limitation. The audit qualifications have to do with accounting events where the Greek Generally Accepted Accounting Principles (GAAP) were not followed. For example, certain expenses were not recognized, or Greek GAAP was incorrectly applied, or the tax accounting rules and regulations were followed instead of GAAP for external reporting.

Table 1

Descriptive statistics on the number of qualifications for the main categories used in qualified audit reports ( $n = 50$ )

Items	Qualifications				
	Mean	Median	S.D.	Min	Max
Total qualifications per audit report	5.46	5.00	2.52	2	24
Inadequate depreciation	0.80	1.00	0.64	0	2
Understatement of bad debt expenses	0.88	1.00	0.82	0	4
Nonrecognition of severance payments	0.88	1.00	0.39	0	2
Overstatement of the long-term investments	0.86	1.00	0.88	0	4
Inaccurate estimation of the taxes payable and other reasons for audit qualifications	2.04	2.00	1.54	0	20

Issuing audit opinions of serious doubts as to the correctness of the accounts of financial statements is sufficient to classify the report as “qualified.” These are typically for firms that refuse to recognize (i.e., incorporate in the accounts and the financial statements certain accounting events) or disclose certain events. A qualified report includes explanatory paragraphs and examples of events that discuss these doubts (cf. Appendix A). The items disclosed in the opinions of qualified audit reports and descriptive statistics for the audit reports are presented in Table 1.

The median value for the total number of qualifications in the audit reports for the sample firms described below is 5. Qualifications for bad debts, redundancy payments, inadequate depreciation, and participation in other companies were not as frequent as qualifications involving inaccurate estimation of the taxes payable and other qualifications. A comparison sample of firms with clean (nonqualified) reports was selected by matching to reduce the effects of other factors such as industry sector, fiscal year-end, and company size. The sample does not include financial firms because of the specialized nature of their accounting standards.

Some of the characteristics of the qualified and nonqualified samples of companies are presented in Table 2. Although the mean value of total assets for qualified firms is €30.4 million and €34.3 million for nonqualified firms, the difference is not statistically significant ( $t = 0.376$ ,  $p = .708$ ). There is a statistically significant difference between average profits of qualified firms, with losses averaging at €0.2 million, and nonqualified firms, profit averaging €3.1 million ( $t = 2.695$ ,  $p = .008$ ). The difference in the equity of qualified firms and non-

Table 2

Characteristics of firm's means and  $t$  tests

Characteristics	Nonqualified	Qualified	$t$ test
Total assets	34,324	30,357	0.376
Equity	18,401	13,564	0.815
Sales	32,537	19,419	1.367
Net profit	3143	–208	2.695**

The amounts are reported in thousand Euros.

$t$  test:  $df = 98$  (two-tailed).

\*\* Significant at the 5% level.



qualified firms is also statistically nonsignificant with € 13.6 million and € 18.4 million, respectively ( $t=0.815$ ,  $p=.417$ ).

### 3.2. Variables

A set of 20 variables served as the initial set, this choice benefited by previous studies and considered client litigation, financial distress, and other publicly available financial information (i.e., financial ratios).

#### 3.2.1. Client litigation

The client litigation variable is coded as 1 if a company had litigation in the year preceding the audit opinion, and as 0 otherwise. A company is considered to have litigation in the following cases (Skinner, 1997): (a) a lawsuit has been filed in a Greek court; (b) there has been an allegation of common stock price fraud; (c) there has been an allegation of stock exchange violation under the Greek law, i.e., when the suit alleges some misstatement or omission of material information. This procedure provides a sample of 21 lawsuit filings. The information on the above cases was obtained from the available financial press (newspapers and magazines).

#### 3.2.2. Financial distress

Clients with a high probability of bankruptcy are more likely to receive qualified opinions because their ability to continue to operate is in greater doubt (Bell & Tabor, 1991; Krishnan & Krishnan, 1996; McKeown, Mutchler, & Hopwood, 1991; Reynolds & Francis, 2001). A proxy for the probability of bankruptcy is the Altman z-score (Altman, 1983), although it has some limitations because it was developed under a different time period, under different economic conditions, and in a different country (USA). It is, nevertheless, used in many studies, especially since a generally accepted model has not been established for Greek companies (Doumpos & Zopounidis, 1999; Theodosiou, 1991).

#### 3.2.3. Financial information

Auditors give qualifications when there are uncertainties about material events that management would not or could not explicitly provide in financial statements. The material uncertainties will usually be reflected in one or more components representing the financial position and performance of the company. Since the financial soundness of a company is represented in its financial statement variables, many researchers have used financial variables in the last 20 years to formulate audit opinion expectations (Dopouch et al., 1987; Francis & Krishnan, 1999; Kida, 1980; Krishnan & Krishnan, 1996; Mutchler et al., 1997; Laitinen & Laitinen, 1998; Sundgren, 1998; Reynolds & Francis, 2001).

However, from a practical point of view, developing an auditor's opinion model that considers a large number of variables poses problems to the use of the model by the auditor. This is because the application of the model requires that the auditor collect all necessary data, which leads to increased time and cost for data collection and management. Furthermore, the consideration of a large number of variables in a multidimensional context raises multi-



collinearity concerns. This may lead to the development of models that are sample-based, unstable, and difficult to interpret (Morrison, 1967). For these reasons, we have adopted an ad hoc variable selection process considering both the correlation of the variables and their statistical significance measured through a univariate test. In particular, indicators that were highly correlated were dropped to reduce the effects of multicollinearity. The retained variables relate to profitability, solvency/liquidity, and managerial performance (Courtis, 1978). Except for the correlation analysis, the statistical significance of mean differences between the indicators for the two groups of firms in the sample was also calculated using the Kruskal–Wallis test (Table 3).

This combination of correlation analysis and Kruskal–Wallis test led to the selection of a limited set of eight financial ratios, one dummy variable (the client litigation), and the z-score (the selected ratios are marked in Table 3 in italics).

### 3.3. Method

The method used to develop the qualification identification model in this study is the UTADIS Multicriteria Decision Aid Method. The UTADIS method aims at developing an

Table 3  
Means and Kruskal–Wallis test of variables

		Qualified	Nonqualified	$\chi^2$
<i>CLIENT LIT</i>	<i>Client litigation</i>	<i>0.380</i>	<i>0.000</i>	<i>17.246*</i>
DEBT/EQ	Debt/equity	1.582	1.821	0.411
<i>SAL/TA</i>	<i>Sales/total assets</i>	<i>0.653</i>	<i>1.074</i>	<i>15.822*</i>
<i>NP/SAL</i>	<i>Net profit/sales</i>	<i>−0.308</i>	<i>0.059</i>	<i>8.343*</i>
<i>REC/SAL</i>	<i>Receivable/sales</i>	<i>1.930</i>	<i>0.461</i>	<i>9.327*</i>
NFA/TA	Net fixed assets/total assets	0.310	0.279	0.534
INV/SAL	Inventories/sales	0.278	0.277	0.931
INV/TA	Inventories/total assets	0.158	0.200	2.692
CASH/TA	Cash/total assets	0.072	0.079	0.320
LOG.TA	Logarithm of total assets	8.639	8.616	0.000
LOG.DEBT	Logarithm of debt	7.964	7.723	0.438
<i>Z.SCORE</i>	<i>Z-score of Altman</i>	<i>0.904</i>	<i>1.935</i>	<i>28.618*</i>
<i>NP/FA</i>	<i>Net profit/fixed assets</i>	<i>−0.112</i>	<i>−1.348</i>	<i>15.549*</i>
TD/TA	Total debt/total assets	0.551	0.483	1.422
<i>NP/TA</i>	<i>Net profit/total assets</i>	<i>0.001</i>	<i>0.070</i>	<i>17.975*</i>
<i>CA/CL</i>	<i>Current assets/current liabilities</i>	<i>1.434</i>	<i>2.752</i>	<i>3.942**</i>
<i>WC/TA</i>	<i>Working capital/total assets</i>	<i>0.105</i>	<i>0.218</i>	<i>4.450**</i>
QA/CL	Quick assets/current liabilities	1.053	1.752	2.492
<i>GP/TA</i>	<i>Gross profit/total assets</i>	<i>0.146</i>	<i>0.294</i>	<i>23.487*</i>
LTD/TA	Long term debt/total assets	0.074	0.043	1.961

Italics denote the selected variables.

\* Significant at the 1% level.

\*\* Significant at the 5% level.

additive utility model for the classification of a set of alternatives in predefined homogeneous groups. In this case, the alternatives correspond to the firms, whereas the classification involves two groups, i.e., the firms that receive a qualified audit opinion and those that receive a clean opinion.

The method operates on the basis of a nonparametric regression-based framework that is similar to discriminant analysis, logit, probit, etc. Using a training sample, the classification model is developed using linear programming techniques. If the classification accuracy of the model in the training sample is satisfactory, then it could be applied to any other sample for extrapolation and decision-making purposes. The form of the developed classification model, its interpretation, and its advantages over traditional classification techniques, are outlined in Appendix B. A detailed description of the method can be found in Zopounidis and Doumpos (1999).

## 4. Results

### 4.1. *Bootstrap methodology and main findings*

A bootstrapping approach is employed in applying the UTADIS method to investigate the relationship between corporate performance and the likelihood of issuing a clean or a qualified audit report and in evaluating the performance of the method for classifying firms. Most often the predictive ability of models developed from past data is tested on a holdout sample. However, data availability problems make it impossible to collect the appropriate data for such a sample. Thus, resampling techniques such as bootstrapping (Efron & Tibshirani, 1993) and cross-validation (Stone, 1974) provide an alternative. Bootstrapping is used in this study because it provides estimations with moderate bias and low variance (Efron & Tibshirani, 1997).

The bootstrap analysis in this study enables the assessment of the predictive performance of the models developed for discriminating between firms that receive qualified or nonqualified audit reports. The bootstrap analysis is performed by constructing 200 bootstrap samples at random with replacement. Each sample consists of 100 firms (i.e., the bootstrap samples are of the same size as the complete sample for firms). According to Efron and Tibshirani (1993, 1997), 50 bootstrap samples are generally adequate for estimating the error rate of a classification/regression model, while more bootstrap replications are required to investigate the stability of the parameters of the model. Since this analysis involves both the examination of the significance of the selected indicators and the analysis of the classification performance of the UTADIS method, an increased number of 200 bootstrap replications are considered. Each bootstrap sample is used as a training sample for the UTADIS method in order to construct a model for the distinction between the firms that receive qualified audit reports and those that receive clean reports. The model is then used to classify the firms not included in the bootstrap sample.

Using this process, two different bootstrap experiments are performed, considering two slightly different sets of financial ratios. The first experiment considers all the indicators



selected through the procedure described in Section 3.2, including the *z*-score, which is a linear combination of some financial ratios. Thus, it can be argued that the consideration of the *z*-score implies an “overuse” of financial information by the developed models. Therefore, in a second stage, the analysis is also performed without the *z*-score as an independent variable.

For both sets of independent variables, statistics of robustness are summarized in Table 4. This table illustrates the significance of each financial ratio in the discrimination between firms that receive a qualified audit report and firms that do not, according to the models developed through UTADIS.

The results clearly indicate that receivables/sales are the most crucial factor in the UTADIS model for the classification of the firms. Net profit/total assets and working capital/total assets are also found to be significant in both cases, with the assigned weights being higher than 10%. In particular, the analysis showed that high receivables/sales, low net profit/total assets, and low working capital/total assets characterize qualified firms. Reynolds and Francis (2001) argue that companies are more likely to receive a qualified report if they are financially distressed and the financial statements were qualified in prior periods. The *z*-score has a moderate weight (8.75%) in the model developed using the complete set of ratios, but its importance cannot be overlooked. In examining empirical evidence of auditor’s opinion decisions, Mutchler et al. (1997) found that companies with qualified reports displayed a low degree of financial distress (as evidenced by high discriminant scores). They explained this unexpected result by suggesting that, in these situations, “contrary information” (bad news) was the driving factor in the auditor’s decision. The most significant differences in the weights of the financial ratios involve the ratios of sales/total assets, net profit/fixed assets, and current assets/current liabilities. The latter ratio is found to be the most important factor when the *z*-score is excluded from the analysis, whereas in the case where all the ratios are considered, its weight is rather moderate. In contrast, Lenard et al. (2001) found that the ratio of current assets/current liabilities is a significant variable for explaining an assessment of going concern

Table 4  
Statistics on the weights (%) of the financial ratios according to the UTADIS method (200 bootstrap replications)

	z-score considered		z-score not considered	
	Average weight	Standard error	Average weight	Standard error
CLIENT LIT	5.61	0.48	7.63	0.95
SAL/TA	12.86	0.67	4.70	0.67
NP/SAL	9.00	0.36	7.19	0.53
REC/SAL	14.87	1.38	16.39	1.26
Z.SCORE	8.75	0.37	—	—
NP/FA	6.93	0.91	16.10	1.34
NP/TA	14.23	0.60	10.14	0.93
CA/CL	7.09	0.46	19.25	1.12
WC/TA	11.37	0.46	10.54	0.79
GP/TA	8.66	0.28	7.71	0.87



because the owners of the firms that receive the qualified opinions face higher risk and lower returns than the owners of firms receiving the clean opinions; they are more likely to sue auditors in the event of bankruptcy. Auditors are therefore compelled to warn stockholders as well as other users that the situation is worse than it appears since certain events with adverse economic consequences may not have been fully recognized.

A comparison with the results of the previous study on FFS detection (Spathis, Doumpos & Zopounidas, 2003) shows that the factors that describe qualified audit reports differ from the ones found useful in detecting FFS. In particular, Spathis et al. found that the total debt, total assets, inventories sales, net profit-to-sales ratio, and sales total assets ratios contribute significantly to explain FFS. In this study, the first two ratios (total debt to total assets, inventories sales) are not considered in model development because they were not statistically significant in the first step of the analysis (Kruskal–Wallis test; cf. Table 3). The net profit-to-sales ratio was found statistically significant, but its contribution to explaining qualified audit report models is below 10%. Finally, the sales/total assets ratio was found to be significant for the complete set of ratios with an average weight of 12.86%.

4.2. Classification results

Table 5 summarizes the classification results for the two bootstrap experiments obtained using the UTADIS method. For comparative purposes, the results of LOGIT and LDA are also reported as benchmarks for the UTADIS results.

The presented results are for the overall error rate, as well as for Type I and Type II error rates. The Type I error refers to the classification of firms that receive qualified audit reports as receiving clean reports. Similarly, the Type II error refers to the classification of firms that

Table 5  
Classification results (error rate estimates, 200 bootstrap replications, in %)

Error types	Estimators	UTADIS	LDA	LOGIT
<i>z-score considered</i>				
Type I	Err <sup>(632+)</sup>	20.68	30.38	25.58
	Err <sup>(1)</sup>	24.57	34.10	32.33
Type II	Err <sup>(632+)</sup>	20.17	19.46	22.89
	Err <sup>(1)</sup>	23.76	22.64	24.58
Overall	Err <sup>(632+)</sup>	21.17	25.66	25.30
	Err <sup>(1)</sup>	24.17	28.37	28.47
<i>z-score not considered</i>				
Type I	Err <sup>(632+)</sup>	21.59	30.58	25.79
	Err <sup>(1)</sup>	24.84	34.41	29.16
Type II	Err <sup>(632+)</sup>	21.38	21.30	24.28
	Err <sup>(1)</sup>	24.52	23.21	25.61
Overall	Err <sup>(632+)</sup>	22.05	26.48	25.39
	Err <sup>(1)</sup>	24.68	28.81	27.39

receive clean audit reports as receiving qualified reports. The overall error rate is the average of the Type I and Type II errors. These three types of errors are summarized in Table 5. This table reports both the leave-one-out bootstrap error rate estimator  $\text{Err}^{(1)}$ , as well as the 632+ estimator  $\text{Err}^{(632+)}$  (Efron & Tibshirani, 1993, 1997).  $\text{Err}^{(1)}$  measures the expected classification error rate estimated from firms not included in the bootstrap samples; thus, it is expected to be an upwardly biased estimator of the true error rate. On the other hand, the apparent error rate ( $\bar{\text{err}}$ ) calculated from the whole sample of firms (re-substitution error) is a downwardly biased estimate. To address these bias issues in the estimates of classification performance, Efron and Tibshirani (1997) proposed the  $\text{Err}^{(632+)}$  estimator that considers both  $\text{Err}^{(1)}$  and  $\bar{\text{err}}$  in order to provide an unbiased error rate estimate.

The comparison of the methods on the basis of the overall error rate shows that the UTADIS method outperforms LDA and LOGIT in terms of the  $\text{Err}^{(632+)}$  and the  $\text{Err}^{(1)}$  estimators, both when the complete set of ratios is considered, as well as in the case where the z-score is excluded from the analysis. The differences between UTADIS and other statistical methods according to the  $\text{Err}^{(632+)}$  estimator are larger compared to those measured according to  $\text{Err}^{(1)}$ , because  $\text{Err}^{(632+)}$  considers both  $\text{Err}^{(1)}$  and the apparent error rate  $\bar{\text{err}}$ . The classification models developed through UTADIS have increased degrees of freedom compared to the models of LDA and LOGIT, which require only the estimation of the discriminant coefficients. Therefore, the apparent error rate  $\bar{\text{err}}$  is lower for UTADIS than for LDA and LOGIT. For instance, when the complete set of ratios is considered, the apparent estimate for the overall error is 14% for the UTADIS method as opposed to 19% and 17% for LDA and LOGIT, respectively. (The same figures are 16% for UTADIS, and 21% for LDA and LOGIT when the z-score is excluded).

Bearing in mind these remarks, it is interesting to note the pattern of differences between the UTADIS method, LDA, and LOGIT for the  $\text{Err}^{(1)}$  estimates of the overall error rate, the Type I and Type II errors. In particular, when the complete set of ratios is considered, the differences in the  $\text{Err}^{(1)}$  estimates of the overall error rate are statistically significant at the 5% level ( $t$  values  $-2.054$  and  $-2.410$  for UTADIS–LDA and UTADIS–LOGIT, respectively). The superiority of the UTADIS method is mainly due to its superiority in terms of the Type I error rate (24.57% for the UTADIS method, as compared to 34.10% for LDA, and 32.33% for LOGIT). The differences of the methods in terms of the  $\text{Err}^{(1)}$  estimates are highly significant ( $t$  values  $-5.227$  and  $-5.468$ , for UTADIS–LDA and UTADIS–LOGIT, respectively). On the other hand, the differences between the methods in terms of the Type II error rates are not significant.

There are small changes in the error rates when the z-score is excluded from the analysis, but the ranking of the methods does not change. In particular, the performance of UTADIS and LDA is slightly inferior compared to the results with the z-score, whereas the performance of LOGIT is slightly improved. In terms of the overall error rate [ $\text{Err}^{(1)}$  estimate] the differences between UTADIS (24.68%), LDA (28.81%), and LOGIT (27.39%) are significant at 10% ( $t$  values  $-1.975$  and  $-1.718$  for UTADIS–LDA and UTADIS–LOGIT, respectively). Once again, these differences are due to the superiority of UTADIS in terms of the Type I error ( $t$  values  $-5.222$  and  $-3.780$  UTADIS–LDA and UTADIS–LOGIT, respectively), whereas for Type II error all methods perform almost equally well.



These results show that the superiority of the models developed through UTADIS over the models of LDA and LOGIT is due to the higher ability of the UTADIS models to describe correctly the firms that receive qualified audit reports. It is also interesting to note that on the basis of the acceptable classification results of the UTADIS method [the overall error rates according to the unbiased  $\text{Err}^{(632+)}$  estimator are approximately 20%], the assumption that there is a positive relationship between the performance of firms (as perceived by the auditors) and the likelihood that they receive a clean report seems to be valid.

## 5. Concluding remarks

The primary objective of this study was to develop a model that identifies factors associated with qualified audit reports and predicts whether firms will receive qualified or clean reports. To achieve this goal, a sample of qualified and nonqualified firms was considered. Univariate tests were employed to select the appropriate explanatory variables and a multicriteria decision aid classification method (UTADIS) was used. The results were compared to well-known multivariate statistical techniques, namely, logistic regression and discriminant analysis. Ten variables (eight financial ratios, one dummy variable, and the *z*-score) were selected to explain qualified audit reports. These variables appeared to be important in prior research and constituted ratios derived from published financial statements. The variables selected by the above techniques as possible useful indicators were: the receivables/sales ratio, the net profit/total assets ratio, the sales/total assets ratio, and the working capital/total assets ratio. The UTADIS method was found quite effective in predicting qualified/clean reports, providing an estimated classification accuracy of approximately 80%. This result suggests that there is potential in identifying pre-engagement factors associated with qualified audit reports through analysis of publicly available financial statements.

The results are encouraging in that we believe we have developed a reliable model for assessing the likelihood of identifying qualified audit reports of businesses in Greece. The use of the proposed methodological framework could be of assistance to professionals who are interested in the financial health of the firms they follow.

Alternative methods for the identification qualified audit reports such as adaptive logit networks and neural networks can be used. Furthermore, there are several publicly available variables which are worth considering in for future research. These variables include the firm's standing within industries, long-term trends, corporate governance, and auditor independence.

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## **Appendix A. Main explanatory paragraphs and examples of events used in qualified audit reports**

### **1. Inadequate depreciation**

The depreciation charged to the Profit and Loss account was not in accordance with the law ... the rate of depreciation was lower than the one required by the tax authorities for those assets for the amount ...

### **2. Understatement of bad debt expenses**

There was no provision for bad debts for the amount of ...

### **3. Non recognition of severance payments**

There was no provision for redundancy payments for the amount of ...

### **4. Overstatement of the long-term investments**

The value ... of the investment in other companies which are not listed at the Athens Stock Exchange cannot be verified.

The value ... of the investment in other companies which are not audited cannot be verified.

### **5. Inaccurate estimation of the taxes payable and other reasons for audit qualifications**

There are tax liabilities overdue for the amount of ...

The company accounts have not been examined by the tax authorities for the tax years... therefore the tax liabilities are not confirmed.

There was no asset revaluation in accordance with the law.

The shareholders' funds are negative and amount to 50% of the share capital. It is therefore essential that capital reconstruction and increase must follow.

The Profit and Loss account is not debited with losses arising from the valuation of bonds (or financial instruments, shares in other companies).

Repairs of assets for the amount of ... have been capitalized.

## **Appendix B. Outline of the UTADIS method**

The use of the UTADIS method in this study aims at the development of a model that classifies a set of  $n$  firms  $a_1, a_2, \dots, a_n$  into two groups  $C_1$  (firms with clean reports) and  $C_2$  (firms with qualified reports). Details for the general multigroup case can be found in Zopounidis and Doumpos (1999).

The first major distinguishing feature of the method over traditional statistical techniques (e.g., discriminant and logit analysis) is that the groups are defined in an ordinal way, assuming that the firms of group  $C_1$  have higher overall performance compared

to the firms of group  $C_2$ . This assumption implies a positive relationship between the overall performance of the firms, as perceived by the auditors, and the likelihood that a firm receives a clean report. The use of the UTADIS method and the ordinal definition of the groups enable the investigation of the validity of this assumption. Should the classification results be satisfactory, then this will indicate that the above assumption is valid.

Within this context, the overall evaluation of the firms and their classification in the two groups is considered as a monotonic function of the partial performance of the firms on each evaluation criterion (client performance measure). This monotonic relationship is modeled through an additive utility function [ $\mathbf{g}$  denotes the criteria vector, i.e.,  $\mathbf{g}=(g_1, g_2, \dots, g_m)$ ]:

$$U(\mathbf{g}) = \sum_{i=1}^m p_i u_i(g_i) \in [0, 1] \quad (1)$$

where  $p_i \geq 0$  is the weight of criterion  $g_i$  ( $p_1 + p_2 + \dots + p_m = 1$ ) and  $u_i(g_i)$  is the corresponding marginal utility function normalized between 0 and 1. The criteria weights indicate the contribution (significance) of each criterion in estimating the overall performance of the firm (the higher the weight the more significant is the criterion). The marginal utility functions  $u_i(g_i)$  provide the partial performance of the firms for each individual criterion  $g_i$ , measured on a scale ranging between 0 and 1. The higher the marginal utility of firm on a criterion, the higher is its performance as perceived by the auditor. Generally, the marginal utility functions are monotone functions defined on each criterion's scale. These functions are increasing for criteria, which are positively related to the performance of the firms (the ratios SAL/TA, NP/SAL, NP/FA, NP/TA, CA/CL, WC/TA, GP/TA, and the zeta score), and decreasing in the opposite case (CLIENT LIT and REC/SAL ratio). Nevertheless, there is no a priori specific functional definition of the marginal utility functions. Instead, these are treated as unknown parameters of the model and they are estimated during the model development process. This special feature of the UTADIS method adds flexibility to the developed classification model, which may take a linear or nonlinear form depending on the sample data under consideration. This flexibility of the classification models developed through UTADIS is a major advantage over models developed through the statistical and econometric techniques such as discriminant and logit analysis, which have a well-specified and less flexible functional form.

Conceptually, the global utility  $U(\mathbf{g}_j)$  of a firm  $a_j$ , as defined in Eq. (1), is an aggregate index measuring the overall performance of the firm on the basis of all criteria. The global utility measures the value (overall performance) of the firm as perceived by the auditor during the examination of its financial characteristics (financial ratios). The higher the global utility, the higher the overall performance of the firm (as perceived by the auditor) is. Considering the aforementioned assumption on the positive relationship between corporate performance and the likelihood that the firm receives a clean report, it can be concluded that the higher the global utility of a firm, the more likely that the firm will receive a clean audit report. Therefore, the following simple classification rule is used to

distinguish between firms that receive clean reports (group  $C_1$ ) and the ones that receive qualified reports (group  $C_2$ ).

$$\left. \begin{array}{l} U(g_j) \geq u_1 \Rightarrow a_j \in C_1 \\ U(g_j) < u_1 \Rightarrow a_j \in C_2 \end{array} \right\} \quad (2)$$

All the parameters of the additive utility model (criteria weights, marginal utilities, cutoff point  $u_1$ ) are estimated using linear programming techniques in order to minimize the violations of the classification rule (Eq. (2)) for a training sample of firms.

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## International income-shifting regulations: Empirical evidence from Australia and Canada<sup>☆</sup>

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### Abstract

This study examines market reactions to two different approaches to reduce income shifting in an international setting. The two methods are described and event studies are performed using stock market data from Canada and Australia. Samples of companies from both countries are partitioned into firms predicted to be affected versus unaffected by each country's event. Australia's regulation taxes profits arising in low-tax subsidiaries at Australian rates. Canada's method defines acceptable transfer prices (arm's-length transactions) and describes enforcement and audit policies. We find evidence of stock market reactions on some of the event dates for Australian and Canadian firms affected by these two approaches.

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**Keywords:** Income shifting; Canada; Australia

### 1. Introduction

This study investigates market responses to two different approaches aimed at minimizing the tax effects of income shifting. We contribute to accounting research on tax-motivated

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income shifting by describing the responses of governments located in high-tax countries to potential income shifting by multinational corporations (MNCs). Harris, Morck, Slemrod, and Yeung (1993, p. 277) suggest that income shifting takes place to reduce the overall tax burden that occurs through the use of artificial transfer prices and by concentrating debt financing in highly taxed subsidiaries. Consequently, two types of tax policies governing income shifting have increased in prevalence. The first method taxes worldwide profits in a manner that minimizes any tax advantages for locating increased profits in countries with low tax rates. An advantage of this type of regulation, from a firm perspective, is that it does not limit the ability of firms to use internal transfer price policies to maximize profits. The second approach defines the prices at which goods and services may be transferred between related parties. A disadvantage of this method is that it limits firms' abilities to use transfer prices to align goals internally.<sup>3</sup> It also ignores any income shifting through financing decisions.

This paper describes the problem of taxation, transfer price policies, and income shifting and undertakes empirical tests of the cash flow implications of the two approaches to determine the perceived effectiveness of each individual approach. Using an event study methodology, sample firms are selected from Australia and Canada, two countries with different approaches. During the time period covered in this study, Australia's regulatory response was to tax profits arising from subsidiaries in low-tax domiciles through legislation of controlled foreign corporation (CFC). In contrast, Canada defined the criteria that transfer prices had to meet, specifically, prices equivalent to those used in arm's-length transactions. Further, Revenue Canada described enforcement and audit policies.

Information gathered from Australian financial statements is used to partition the Australian sample into three groups: firms with divisions in low-tax countries and reporting transfers between divisions (LT firms), firms with divisions in low-tax countries and reporting no transfers between divisions (NT firms), and domestic firms or firms with divisions in high-tax countries (HT firms) only. The results indicate a statistically significant negative market reaction to the first announcement (May 26, 1988) of impending regulation for LT firms. No evidence of a market reaction is found for the unaffected firms. This methodology controls for possible cross-sectional correlation due to synchronous stock-price movements within one country. In addition, these findings provide evidence that the market differentiated between firms potentially affected and unaffected by the CFC legislation.

Testing for a reaction in the Canadian sample firms was more difficult because the government introduced the guidelines over time. The first drafts of the information circular were sent by mail to Canadian firms. Therefore, regression analysis is performed using both daily and monthly data on a sample of Canadian firms partitioned into two groups: firms with international operations and domestic firms. The use of daily returns limits the analysis to only two dates for the event study and results in no significant reactions. Using monthly data for firms with international operations, we find negative and significant market reactions to the introduction of the new transfer price guidelines in October of 1984. In addition, we find

<sup>3</sup> In our discussion with controllers of U.S. international firms, we found that firms develop a system of internal "credits" when transfer price policy is limited by government regulation.



negative and weakly significant market reactions on March 1986 when the last draft of the information circular was released and on February 1987 when the guidelines and policies stated in the circular were finally implemented. No evidence of a negative market reaction is found for the unaffected firms.

This research contributes to international accounting research literature in several ways. Few researchers have used data from international stock markets for empirical tests on international issues. Recent studies analyze the responses of U.S. multinationals to excess foreign tax limitations (for example, Collins, Kemsley, & Lang, 1998) and U.S. multinationals' use of interest deductions to source income in different jurisdictions (Newberry & Dhaliwal, 2001). Mills and Newberry (2002) analyze tax payments and income from foreign-controlled corporations located in the United States to detect income shifting. Our study complements this literature by reaching beyond the United States and analyzing firms domiciled in Australia and Canada. Our paper also complements the research literature about the effects of tax law changes on security prices by testing whether the market differentiates between firms expected to be affected and others expected to be unaffected by the legislation. This research highlights two approaches aimed at controlling potential abuses in international income shifting. In recent years, there appears to be widespread discontent with the use of arm's-length transfer pricing policies in the United States and Canada (see for example, Boidman, 1995; Mazzerov, 1994). Information about alternative approaches is potentially useful to policy makers and others interested in these issues.

Four sections follow. Section 2 contains a review of the relevant literature and outlines the conflict between MNCs and governments over international income shifting and provides details about the two approaches. The research methodology and results are presented in Section 3, and the final section concludes the paper.

## 2. Income shifting

As firms have become increasingly international, their ability to shift income across national borders has also increased. When goods, services, and intangible assets within one firm are traded across national borders, opportunities arise to use these transfers to manage income to reduce the overall tax burden (Harris et al., 1993). While income shifting may benefit tax-haven countries, governments in countries with higher tax rates may suffer fiscal shortfalls (Rugman & Eden, 1985). Governments are also concerned about factors such as control over host-country resources. MNCs are in a unique position to use transfer prices to reallocate resources, within limits, and redistribute profits among countries. Governments with high tax rates may view this control as undesirable because national output, employment levels, consumer prices, factor incomes, and the balance of payments are affected (Rugman & Eden, 1985). Acting on these views, governments have established regulation to tax profits arising in low-tax domiciles or regulation that precisely defines acceptable transfer prices.

Policies to limit income shifting have been proposed since the early 1960s. A 1979 report by the Organization for Economic Cooperation and Development (OECD) formally defined an arm's-length standard, globalizing the whole issue of transfer pricing. The OECD report

described generally accepted practices in determining transfer prices for taxation purposes. Germany introduced tax legislation relating to intrafirm transfer-pricing rules in 1983. The United States addressed transfer pricing through the Tax Reform Act of 1986. In July 1994, the U.S. Internal Revenue Service released additional guidelines for transfer price policies. Japan set forth ground rules in 1986. Revenue Canada issued a circular regarding international non-arm's-length transactions in 1987. The European Community (EC) countries reached agreement on proposals for the harmonization of direct taxes in Europe and issued a draft convention on transfer-pricing arbitration in 1992 to resolve transfer-pricing disputes between member countries (Tang, 1992). At the end of July 1995, the OECD issued new transfer price guidelines encompassing the traditional transaction methods for setting transfer prices and including two profit-splitting methods: transactional profit methods and global formulary apportionment methods. These policies attempt to limit income shifting by defining how transfers should be valued. Alternatively, in 1990, Australia introduced regulation to levy additional taxes on income arising from subsidiaries in low-tax domiciles. In 1976, New Zealand had enacted similar legislation, as did Sweden in 1990.

A struggle has developed between firms and governments over how and when taxes should be assessed on income earned through foreign operations. If firms are declaring income in low-tax domiciles and avoiding taxes in high-tax domiciles, tax monies may be escaping from the high-tax domicile. Effective regulation reduces a firm's ability to shift income to avoid taxes and therefore has cash-flow effects. Cash will be diverted from the MNC to the domestic government enacting the legislation. Due to this increase in cash outflow, the expected market reaction to successful regulation would be a reduction in share price for the affected MNCs.

### *2.1. Two approaches to reducing income shifting*

In this section, we describe the CFC regulation used by Australia and the arm's-length pricing policies, which are used by Canada. While we cannot directly compare the empirical results from these two regimes, a complete understanding of each type provides a more complete picture of the complexities of this issue.

Australian legislation, implemented in 1990, emphasizes CFC regulations.<sup>4</sup> A firm is subject to CFC regulation if the Australian resident company has an interest of 10% or more in a foreign company (subsidiary) or if the foreign subsidiary meets certain control tests. The strict control test is satisfied when five or fewer residents, together with their associates, own or are able to acquire or control an interest of 50% or more in a company (Price Waterhouse, 1991). There are several de facto control tests as well, which essentially demonstrate that a specified number of residents acquire or effectively control at least 40% of a foreign company. If a firm is subject to CFC regulation, then an analysis of the sources of foreign income is undertaken. Income arising in subsidiaries located in countries on the "white list"

<sup>4</sup> While the 1990 regulations included both CFC and arm's-length legislation, emphasis was placed on the CFC regulation. Although Australia enacted additional tax legislation and finalized tax treaties with several other countries, the CFC regulations have remained intact since 1990.



is not taxed. Countries on the “white list” have tax rates similar to those of Australia.<sup>5</sup> However, income is taxed at Australian rates (with a credit for foreign taxes paid) when it arises in subsidiaries located in countries that are “unlisted,” (i.e., low-tax countries). Where any exempted country offers tax breaks that enable a foreign entity to pay less than what would be collected under the Australian tax system, the income qualifying for the tax break is treated as if it arose in Australia and is subject to Australian rates.

An alternative to the Australian approach is for a government to establish a transfer price that reflects the value of the transfer to unrelated firms. Rugman and Eden (1985, p. 2) suggest that

In many nations, transfer prices are regulated to conform to an idealized “arm’s-length standard,” i.e. the market price that would have been negotiated by unrelated parties bargaining at arm’s length.

This arm’s-length principle specifies that internal transactions take place under terms and at a price one could reasonably expect in similar circumstances if the parties were dealing with each other at arm’s length. Arguably, the best known arm’s-length standard is the U.S. Tariff Act, Sections 402 and 402(A) and Section 482 of the Internal Revenue Service Code, which specify arm’s-length (market based) prices for intracorporate transfers for both domestic and international transfers.

In 1987, Revenue Canada specifically addressed transfers between Canadian taxpayers and non-arm’s-length nonresidents in Information Circular 87-2, “International Transfer Pricing and Other International Transactions.” This circular applies to international non-arm’s-length transactions involving a Canadian taxpayer and describes Revenue Canada’s approach to the tax treatment of international transfer pricing and other related issues. The information circular does not create new law but is a statement of the government’s view and enforcement practices regarding proper intercompany pricing guidelines (Boidman, 1987a). The circular (paragraph 12) suggests that firms rely on comparable uncontrolled prices (Lawlor, 1987). If these are not available, then a cost-plus, resale price, or other secondary method is used to set prices. Paragraph 8 of the circular suggests that taxpayers adopt the OECD recommendation to separate product transfer prices from management fees and to price them independently. The circular also addressed Revenue Canada’s enforcement and audit policies around transfer prices. Although Revenue Canada released an information circular in 1995 providing guidelines for the resolution of tax treaty disputes, the arm’s-length standard continues to govern transfer prices for Canadian-based firms.

Many countries’ international tax policies include both approaches, but usually one approach is more emphasized. The choice of an approach is probably affected by several factors. For example, regulators in Australia decreased the overall corporate tax rate. As a quid pro quo for this reduction, they introduced CFC regulation as part of a stricter tax regime based on improving the equity and efficiency of the Australian income tax system. “Although Australian

<sup>5</sup> Sixty-one countries are “white listed.” In another 20 countries, the tax recognition varies according to the type of business conducted.



tax law requires goods and services transferred between related corporations to be valued at fair market value, it is difficult to verify the transfer-pricing policies and financial arrangements between related corporations and thus enforce the fair market value principle. Often there are no well-established markets for such goods and services and the task of pricing them is highly subjective. The proposed approach [CFC regulation], by ensuring that all income earned by Australian multinationals is taxed at rates comparable to that in Australia, will greatly reduce the incentives for the manipulation of transfer pricing. At the same time, it will improve the competitiveness of Australian companies engaged in genuine international business operations relative to companies whose activities are subsidized by transfer pricing and tax-avoidance activities" (Taxation of Foreign Source Income, 1988, p. 4).

Canada's decision to clarify its transfer price policies may have resulted, in part, from the 1986 U.S. tax reforms that included stricter interpretations of arms-length rules for MNCs. In addition, the United States is Canada's largest trading partner, and having similar policies in place would reduce confusion and transaction costs for those firms trading primarily in the United States. The first draft of the information circular referenced U.S. Internal Revenue Service's Section 482 on multinational pricing, but this was omitted in the final draft although the influence remained (Boidman, 1987b).

### 3. Research method and empirical results

To test whether either of the two regulations noted above was effective, this research uses an event-study methodology. A maintained assumption is market efficiency in the semistrong form: the market will react quickly and in an unbiased manner to new public information (Foster, 1980). Since the events in our study are related to a political process, there may be problems in identifying the event dates. We therefore used two types of event dates to capture the effects of both deliberation and announcement periods. Another issue we must address is that our events occur at the same time for all companies in each country. The standard event methodology assumes that the event windows of the sample firms do not overlap in calendar time. This assumption allows us to calculate the variance of the aggregated cumulative abnormal returns without regard to the covariances between abnormal returns of each sample stock because the covariances would be zero. However, the event windows for all sample firms in each country are the same in our study, resulting in nonzero covariances between abnormal returns (MacKinlay, 1997). Schipper and Thompson (1983), in the context of merger-related regulatory changes in the United States, handled "clustering" by analyzing abnormal returns without aggregation. We follow their approach by performing multivariate regressions using dummy variables for the event dates.

The following equation is the basic regression model we run for each of our samples (Australia and Canada):

$$R_{it} = a_i + b_{i1}R_{mt-1} + b_{i2}R_{mt} + b_{i3}R_{mt+1} + c_{ij}Del_t + c_{ij}Ann_t + u_{it}. \quad (1)$$

The market and firm-specific variables are:  $a_i$  = intercept for firm  $i$ ,  $R_{it}$  = return on security  $i$  in period  $t$ ,  $R_{mt-1}$  = market return in period  $t-1$ ,  $R_{mt}$  = market return in period  $t$ , and

$R_{mt+1}$  = market return in period  $t+1$ . Three daily market returns ( $R_{mt-1}$ ,  $R_{mt}$ , and  $R_{mt+1}$ ) are employed to adjust for possible nonsynchronous trading (Scholes & Williams, 1977).

The event-related variables are:

$Del_t = 1$  if day  $t$  is a deliberation announcement date and 0 otherwise (discussed in the next sections), and

$Ann_t = 1$  if day  $t$  is a date for the actual introduction or establishment of the regulation and 0 otherwise.

Australian firms are selected because (1) the regulation defines certain foreign income as taxable at Australian rates, (2) data are available for Australian domestic and multinational firms, and (3) there are no obvious competing and potentially confounding events during the event window.<sup>6</sup> Canadian firms are selected because (1) the circular defines transfer prices to be the same as if an arm's-length transaction were taking place and delineates enforcement and audit policy, (2) the data necessary for analysis are available, and (3) there are no competing events during the event window.

Because we are able to differentiate firms that transfer goods from firms that do not, we believe this empirical methodology is most appropriate. If we set up portfolios based on foreign sales or income, we could not discriminate those firms that both make and sell products in a foreign country from those firms that make goods domestically and then sell them in a foreign country. In addition, our sample contains a diverse mix of industries and, in many cases, we have firms within the same industry that are categorized as expected to be affected by the change as well as firms expected to be unaffected by the change. This helps reduce the effects of potentially confounding events on our results.

### 3.1. Australian sample, event dates, and results

Of the largest 100 Australian firms (assets in 1985), 44 firms were eliminated because they lacked data over the entire sample period primarily due to merger or reorganization.<sup>7</sup> Geographic segment information in the financial statements provided transfer price policies for the remaining 56 firms. Thirteen of these firms reported having subsidiaries domiciled in low-tax countries throughout the sample period and either definitely disclosed that transfers took place among these subsidiaries or were silent regarding transfers (LT firms). Another 15 firms reported having subsidiaries in low-tax countries but disclosed that there were no transfers between their subsidiaries (NT firms). The remaining 27 firms were either domestic

<sup>6</sup> While the Economic Statement (1988) contained tax reforms other than the proposed CFC regulation, the other major tax changes (including the reduction in corporate tax rate) had been "telegraphed" by the government and had received extensive media coverage prior to this date. The CFC regulation, on the other hand, was issued on this date as a public discussion paper and had not received prior media coverage.

<sup>7</sup> The initial sample of 100 firms represents 62% of the total market capitalization in Australia at that time. When we analyze firms beyond the top 100, the companies become relatively small very quickly and are increasingly unlikely to be multinational. Hence, our sample size is limited.



firms or reported having operations only in higher-tax countries (HT firms). We use 1985 segment reports to determine a firm's classification for 1986, then 1986 reports for classification in 1987, and so on. One firm was eliminated because it changed categories during the sample period, leaving a total of 55 sample firms.<sup>8,9</sup>

Table 1 presents descriptive statistics for the sample firms. In Panel A, the NT firms are largest in terms of total revenue and percentage of foreign revenue. HT firms are substantially smaller for both. The business classification in Panel B indicates that mining and other resource-based industries account for 38% of LT firms, 20% of NT firms, 52% of HT firms, and 40% of the total sample. The remaining firms are spread throughout other industries.

On the evening of May 25, 1988, Australia released an Economic Statement (1988) that proposed CFC legislation. On May 26, 1988, the Australian Financial Review (1988) released an article discussing the government's position in the statement. This appears to be the first public notice of the impending CFC legislation. Businesses objected strenuously to the proposed legislation, indicating that Australian companies would move offshore to compete in global markets. Subsequently, on June 9, 1989, Business Review Weekly (1989) released an article that stated,

Equally important, the government has watered down its initial thinking about an accruals tax. It has dropped the idea of indiscriminately applying full Australian taxes to all companies reporting profits from tax havens.

On July 24, 1989, an article in the *Australian Financial Review* suggested that the impact of the CFC legislation would be "felt across the spectrum of Australian businesses." On September 14, 1990, the legislation was formally introduced. News of this was released in the *Australian Financial Review* on September 14th and the regulation took effect in June of 1991. Therefore, these dates are incorporated into the empirical model:

$Del_1 = 1$  if date is May 26 or 27, 1988, and 0 otherwise,

$Del_2 = 1$  if date is June 8 or 9, 1989, and 0 otherwise, and

$Ann = 1$  if date is September 13 or 14, 1990, and 0 otherwise.

To eliminate the potential of confounding events, we chose a 2-day event window that included the day of the event and the day after, unless the event day was Friday, in which case we used the prior trading day (Thursday).

Several covariates were considered as control variables, including size, industry, and percent foreign sales. While size may affect market returns, intuitively there is no link

<sup>8</sup> These partitions reflect firm operations to the extent that audited segment information reflects actual segment operations and that firms reporting no transfers do not transfer among subsidiaries. If there was any doubt, firms were classified conservatively to bias against finding results.

<sup>9</sup> Over the time of this study, Australian companies were required to disclose a listing of all subsidiaries, their location, and their contribution to profit. This listing was used to confirm that the HT firms did not report material operations in low-tax countries.



Table 1  
Sample of firms—Australia<sup>a</sup>

Panel A: Descriptive statistics of sample firms

Classification	Number of firms	Mean	Median	S.D.	Minimum	Maximum
LT firms	13					
Revenue (in millions)		3855.85	1770.00	4425.94	132.00	14,119.00
Percentage of foreign revenue		19.54	24.00	10.78	1.00	35.00
NT firms	15					
Revenue (in millions)		5233.73	4483.00	4710.90	208.00	15,177.00
Percentage of foreign revenue		37.93	36.00	21.59	2.00	76.00
HT firms	27					
Revenue (in millions)		962.30	491.00	1213.25	4.00	5717.00
Percentage of foreign revenue		4.19	0.00	9.27	0.00	35.00

Panel B: Number of sample firms by business classification

Primary line of business	LT firms	NT firms	HT firms
Mining	2	1	5
Oil and gas	2	1	4
Solid fuels	0	0	4
Diversified resources	1	1	1
Chemicals	1	0	0
Building materials	1	3	0
Miscellaneous industrial	0	0	1
Diversified industrial	1	1	1
Banks and finance	0	3	0
Insurance	0	0	1
Investment and financial	0	0	1
Property trust	0	0	1
Developers and contractors	0	1	1
Engineering	0	0	2
Transport	0	2	0
Miscellaneous services	1	0	1
Media	0	1	0
Retail	0	0	2
Food and household	1	0	1
Alcohol and tobacco	1	0	0
Entrepreneurial investors	2	1	1
Total	13	15	27

Total revenue and percentage of foreign revenue was obtained from the geographic segment data presented in the 1990 annual reports of the sample firms.

1985 Australian Stock Exchange line of business classifications was used.

LT firms: firms with segments in low-tax domiciles with intersegment transfers reported ( $n=13$ ).

NT firms: firms with segments in low-tax domiciles with no intersegment transfers reported ( $n=15$ ).

HT firms: domestic firms ( $n=21$ ) or firms with no segments in low-tax domiciles ( $n=6$ ).

<sup>a</sup> The sample firms are taken from the largest 100 Australian firms (by assets) at the end of 1985.

between the size of a firm and how it might be affected by the regulation. Nevertheless, log of sales is included as a control variable for size in the regression. Since the sample is small and firms are representative of many different industries, there is no control for an industry effect. Percent of foreign sales is considered in later tests. The first regression equation is thus specified as:

$$R_{it} = a_i + b_{i1}R_{mt-1} + b_{i2}R_{mt} + b_{i3}R_{mt+1} + b_{i4}\log(\text{sales}) + c_{i1}\text{Del}_1 + c_{i2}\text{Del}_2 + c_{i3}\text{Ann} + u_{it}. \quad (2)$$

Next, the sample is partitioned into two groups to determine whether investors were able to differentiate the effects of the regulation on different types of firms. The first group consists of firms with segments in low-tax countries that transfer products or services among the segments (LT firms). These firms are the most likely to have reduced cash flows and be negatively affected by the regulation. Accordingly, the following are predicted: a negative market reaction to the announcement that regulation was pending ( $\text{Del}_1$ ), a positive market reaction (but less than the  $\text{Del}_1$  reaction) to a softening of the regulation ( $\text{Del}_2$ ), and a further negative reaction to the announcement of the actual regulation (Ann) if the actual regulation was more restrictive than expected. The second group consists of the two types of firms that may not experience a negative reaction: firms with segments in low-tax countries reporting no intrasegment transfers (NT firms) and domestic firms or firms with segments only in high-tax countries (HT firms). The coefficients on the interactive terms reflecting these partitions are expected to be insignificant, reflecting no expected market reaction for the unaffected (HT + NT) firms. Since the event dates for the HT and NT firms are interacted with zero-one dummy variables, the second regression equation is:

$$R_{it} = a_i + b_{i1}R_{mt-1} + b_{i2}R_{mt} + b_{i3}R_{mt+1} + b_{i4}\log(\text{sales}) + c_{i1}\text{Del}_1 + c_{i2}\text{Del}_2 + c_{i3}\text{Ann} + c_{i4}\text{Del}_1(\text{HT} + \text{NT}) + c_{i5}\text{Del}_2(\text{HT} + \text{NT}) + c_{i6}\text{Ann}(\text{HT} + \text{NT}) + u_{it}. \quad (3)$$

For sensitivity analysis, the same model is estimated using three partitions (LT, HT, and NT). Again, the event dates are interacted with dummy variables reflecting the nonaffected firms. Accordingly, the model is:

$$R_{it} = a_i + b_{i1}R_{mt-1} + b_{i2}R_{mt} + b_{i3}R_{mt+1} + b_{i4}\log(\text{sales}) + c_{i1}\text{Del}_1 + c_{i2}\text{Del}_2 + c_{i3}\text{Ann} + c_{i4}\text{Del}_1*\text{NT} + c_{i5}\text{Del}_2*\text{NT} + c_{i6}\text{Ann}*\text{NT} + c_{i7}\text{Del}_1*\text{HT} + c_{i8}\text{Del}_2*\text{HT} + c_{i9}\text{Ann}*\text{HT} + u_{it}. \quad (4)$$

Daily data from the Australian Stock Exchange are used. The market return is proxied by the Australian all ordinaries index assuming reinvestment of dividends. The regressions are

Table 2  
Regression results for Australian firms

Variable	Expected sign	Eq. (2)	Eq. (3)	Eq. (4)
Intercept		.046*** (3.20)	.046*** (3.20)	.046*** (3.20)
$R_{mt-1,i}$		-.015* (-1.75)	-.015* (-1.75)	-.015* (-1.75)
$R_{mt,i}$		.999*** (114.95)	.999*** (114.96)	.999*** (114.96)
$R_{mt+1,i}$		-.030*** (-3.54)	-.030*** (-3.54)	-.030*** (-3.54)
Log of sales		.00002 (0.304)	.00003 (0.30)	.00003 (0.26)
Ann (September 14, 1990)	-	.002 (0.89)	-.001 (-0.12)	-.001 (-0.12)
Del <sub>1</sub> (May 26, 1988)	-	-.004 (-1.42)*	-.014*** (-2.61)	-.014*** (-2.61)
Del <sub>2</sub> (June 9, 1989)	+	-.001 (-0.24)	.004 (0.56)	.004 (0.56)
(HT + NT)Ann <sub>1</sub>	+		.004 (0.61)	
(HT + NT)Del <sub>1</sub>	+		.013*** (2.20)	
(HT + NT)Del <sub>2</sub>	-		-.006 (-0.77)	
HT × Ann <sub>1</sub>	+			0.005 (0.70)
HT × Del <sub>1</sub>	+			.009* (1.44)
HT × Del <sub>2</sub>	-			-.010 (-1.15)
NT × Ann <sub>1</sub>				0.002 (0.323)
NT × Del <sub>1</sub>	+			.020*** (2.85)
NT × Del <sub>2</sub>	-			.000 (0.01)
Adjusted $R^2$		.254	.245	.246

The  $t$  statistics are given in parentheses.

The estimation period is June 1, 1987, to September 30, 1990.

\*  $P < .10$ , one-tailed tests where predictions are made.

\*\*\*  $P < .01$ , one-tailed tests where predictions are made.

run on daily market returns over the period of trading days from June 1, 1987, to September 30, 1990, for the Australian sample.<sup>10</sup>

Regression results for Eqs. (2)–(4) are presented in Table 2. None of the event dates is significant when Eq. (2) is estimated. A possible explanation for these results is the tendency for stock prices within any one country to move synchronously (Morck, Yeung, & Yu, 2000). However, the market likely expects these firms to be differentially affected. Accordingly, when the sample is partitioned into two groups (Eq. (3)), evidence of a significant reaction is obtained on the coefficient for May 26, 1988, when the *Australian Financial Review* first released news of the government's intention to introduce controlled foreign company legislation. As predicted, the market reaction is significantly negative ( $\text{Del}_1 = -.014$ ,  $P < .01$ ) for firms with transfers to subsidiaries in low-tax countries (LT). The positive coefficient on  $(\text{HT} + \text{NT})\text{Del}_1$  (.13,  $P < .05$ ) can be added to  $-.014$  to yield  $-.001$ , which suggests that there was no significant market reaction for the unaffected firms. Since it is possible to partition the sample even more finely and identify firms that will be differentially affected (thereby increasing the power of our test), Eq. (4) is estimated with dummy variables for each of the three groups. The coefficient for LT firms does not change.

<sup>10</sup> The model is also run from June 1, 1986, to September 30, 1990, since returns may have been abnormal through the market crash period in 1987. Results were similar to those reported.



The coefficient for the firms with subsidiaries in low-tax domiciles reporting no transfers ( $NT \times Del_1$ ) is significantly positive (.020,  $P < .01$ ), and the coefficient for domestic firms and firms with subsidiaries in high-tax countries ( $HT \times Del_1$ ) is positive but only weakly significant (.009,  $P < .10$ ). These findings are consistent with our expectation that the HT and NT groups would experience similar market reactions. Contrary to our expectations, significant reactions to other dates ( $Del_2$  and Ann) are not observed in any of the regressions for any of the sample groups.

The lack of an observed reaction to  $Del_2$  and Ann may be due to a selection bias.<sup>11</sup> To test this, firms are classified as LT only when they definitely report having transfers between segments, reducing the LT sample to seven firms. Findings for this group are similar to those presented. To increase the goodness of fit, four firms whose first-stage regressions have very low goodness of fit statistics are also eliminated.<sup>12</sup> The results of this regression are similar to the reported results, but significance levels are stronger. We also ran a similar regression in which we interacted the size variable (log of sales) with the dates. Since there were no significant changes in the coefficients, these results are not reported in a table.

Since firms with foreign sales are potentially more affected by the regulation, foreign sales are also used as a control to test the robustness of our results. When the model is estimated without partitions, a negative and significant coefficient is obtained for  $Del_1 \times$  percentage of foreign sales (not reported in a table). This provides further evidence that the market discriminated between firms potentially affected and unaffected. When the LT, HT, and NT dummies are interacted with percent foreign sales, a problem with multicollinearity arises since there is little variation in foreign sales within each partition. The VIF factors and eigenvalues are at levels indicating large amounts of collinearity between the event-date dummies (Ann,  $Del_1$ , and  $Del_2$ ) and the control variables (event dates  $\times$  partition group  $\times$  rank of foreign sales).<sup>13</sup> This limitation of the data results in large variances, and consequently no significance. Further robustness analysis was performed using univariate tests of average raw returns on the event dates between the two partitions (LT vs. HT+NT). The difference in average raw returns was weakly significant ( $P < .10$ ) and in the expected direction.

Additionally, LT firms' before-tax and after-tax incomes throughout the sample period are examined to identify any firms operating in a net loss position. This is a very crude attempt to control for the marginal tax rate. None of the LT firms incurred losses during this period. Thus, these firms are potentially affected by any changes in tax legislation.

<sup>11</sup> We may not have identified firms that transfer between subsidiaries within the same segment. While firms generally report intersegment transfers, they rarely report intrasegment transfers. For example, where Segment 1 includes Australia and Segment 2 includes both the United States and Hong Kong, a firm may have transfers between the United States and Hong Kong yet legitimately report no intersegment transfers.

<sup>12</sup> The adjusted  $R^2$  on the SUR model is .0001. Because the number of observations is quite large (42,793), noise is introduced, which reduces the goodness of fit. An adjusted  $R^2$  of .25 is obtained when a one-stage model including all variables is run. The same coefficients are significant, with stronger  $t$  statistics.

<sup>13</sup> To mitigate potential bias from outliers, we ranked firms on foreign sales.

### 3.2. Canadian sample, event dates, and results

The Canadian sample is comprised of 72 firms (40 MNCs and 32 domestic firms). We drew this sample from the *Financial Post Cards*. These cards from the *Financial Post* (Canada's business newspaper during this period) report key items from historical accounting statements for large corporations in Canada and allow identification of firms with any foreign subsidiaries. A firm is classified as MNC if it had foreign subsidiaries as of December 1984. When availability of stock market return data was considered, the final sample size was reduced to 72 firms. Table 3 reports sample descriptive statistics on annual revenues and percent foreign revenues and the sample firms' industry classifications.

The following events led up to the 1987 release of the information circular that defined transfer prices and described how they would be enforced. In October 1984, the first draft of the circular was released with wide circulation and criticism. Only Revenue Canada reviewed a second draft in February 1985 and only Revenue Canada again reviewed a third draft in April 1985. In September 1985, a fourth draft was released for wide circulation and criticism. Finally, in March 1986, the last draft was released. February 27, 1987, marks adoption of the regulation, which had changed very little from the March 1986 draft.

In addition to the above periods, there was an article in the *Globe and Mail* (Canada's only national newspaper at the time) on November 18, 1985. This article described the early drafts as containing a lot of "saber rattling" (i.e., tough language). This article also speculated that the circular might not be released. The March 1986 draft had much less aggressive language about both the transfer price definitions and the enforcement methods. Using the date, the circulars that were mailed may not capture the market reaction since information was released over time rather than at one point in time. The regressions are run using two types of market data, daily and monthly returns. The model estimated over the entire sample of 72 Canadian firms using daily returns is:

$$R_{it} = a_i + b_{i1}R_{mt-1} + b_{i2}R_{mt} + b_{i3}R_{mt+1} + b_{i4}\log(\text{sales}) + c_{i1}\text{Del} + c_{i2}\text{Ann} + u_{it}. \quad (5)$$

Because many of these periods involved the release of circulars through the mail and receipt of the circular happened over a period of weeks when daily data is used, the event dates are restricted to the following two (the newspaper article and the final release of the circular):

Del = 1 if date is November 18 or 19, 1985, and 0 otherwise, and

Ann = 1 if date is February 27 or March 2, 1987, and 0 otherwise.

We spoke to Revenue Canada in an effort to increase the number of event dates used in the regressions. Unfortunately, they were unable to give us any other dates to analyze. A negative reaction is predicted for November 18, 1985, and a negative reaction if the legislation released on February 27, 1987, was more stringent than anticipated. The daily return on the Toronto Stock Exchange 300 Index (with dividends reinvested) is used as the market return, and stock returns are obtained from the Toronto Stock Exchange/Western database.

Table 3

Sample of firms—Canada<sup>a</sup>*Panel A: Descriptive statistics of sample firms*

Classification	Number of firms	Mean	Median	S.D.	Minimum	Maximum
MNC firms	40					
Revenue (in millions)		2553.3	1261.2	3094.9	72.7	11,149.0
Percentage of foreign revenue		50.5	50	29.9	5	95
Domestic firms	32					
Revenue (in millions)		923.7	523.7	1367.1	9.7	6139.0
Percentage of foreign revenue		22.0	0	32.8	0	95

*Panel B: Number of sample firms by business classification*

Industry	MNC firms	Domestic firms
Appliances	0	1
Brewery/distillery	2	1
Broadcasting	0	2
Building materials	1	0
Computer	1	1
Construction	0	2
Diversified industrials	3	2
Electronics	3	0
Food products	0	4
Forest products	3	3
Holding companies	4	3
Industrial manufacturing	4	3
Insurance and investment	0	3
Management companies	0	1
Mining	6	1
Oil and gas	2	2
Paper products	3	0
Retail	0	2
Steel	4	0
Telecommunications	2	0
Textiles	1	0
Transportation	1	1
Total	40	32

<sup>a</sup> Total revenue and percentage of foreign revenue for 1990 were obtained from the Canadian Disclosure CD-ROM database.

Next, we partition the sample into MNCs and domestic firms (Dom takes the value of 1 for domestic firms and 0 for MNCs) and estimate the following model:

$$R_{it} = a_i + b_{i1}R_{mt-1} + b_{i2}R_{mt} + b_{i3}R_{mt+1} + b_{i4}\log(\text{sales}) + c_{i1}\text{Del} + c_{i2}\text{Ann} \\ + c_{i3}\text{Del}*\text{Dom} + c_{i4}\text{Ann}*\text{Dom} + u_{it}. \quad (6)$$



In Table 4, which displays regression results for Eqs. (5) and (6), we find no market reaction on these dates.

One problem with this method is that firms (and market participants) received copies of the proposed circular by mail. There were few announcements in the press about the drafts. Therefore, monthly data are also used and the number of dates is increased. In Eqs. (7) and (8), the following event dates are analyzed:

Del<sub>1</sub> = 1 if month is September 1985 and 0 otherwise,  
 Del<sub>2</sub> = 1 if month is November 1985 and 0 otherwise,  
 Del<sub>3</sub> = 1 if month is March 1986 and 0 otherwise,  
 Ann<sub>1</sub> = 1 if month is October 1984 and 0 otherwise, and  
 Ann<sub>2</sub> = 1 if month is February or March 1987 and 0 otherwise.

The first model using monthly returns is hence specified as:<sup>14</sup>

$$R_{it} = a_i + b_{i1}R_{mt} + b_{i2}\log(\text{sales}) + c_{i1}\text{Del}_1 + c_{i2}\text{Del}_2 + c_{i3}\text{Del}_3 + c_{i4}\text{Ann}_1 + c_{i5}\text{Ann}_2 + u_{it}. \quad (7)$$

As before, we partition the sample into MNCs and domestic firms, with the resulting model as:

$$\begin{aligned} R_{it} = & a_i + b_{i1}R_{mt} + b_{i2}\log(\text{sales}) + c_{i1}\text{Del}_1 + c_{i2}\text{Del}_2 + c_{i3}\text{Del}_3 + c_{i4}\text{Ann}_1 + c_{i5}\text{Ann}_2 \\ & + c_{i6}\text{Del}_1*\text{Dom} + c_{i7}\text{Del}_2*\text{Dom} + c_{i8}\text{Del}_3*\text{Dom} + c_{i9}\text{Ann}_1*\text{Dom} \\ & + c_{i10}\text{Ann}_2*\text{Dom} + u_{it}. \end{aligned} \quad (8)$$

Following are predictions for the coefficients reflecting the affected firms. A negative reaction is predicted for Del<sub>1</sub> because the September 1985 draft was widely criticized by different groups as being either “too specific” or “too general.” A negative reaction is also expected for Del<sub>2</sub>, the negative newspaper article. A negative reaction is predicted for Del<sub>3</sub> since this draft would likely be published the next summer as the final version, ending speculation that the circular would never be published (Lawlor, 1987). A negative reaction is predicted for Ann<sub>1</sub>, the initial introduction of the regulation. A negative or no reaction is predicted for Ann<sub>2</sub>, the final establishment of the regulation.

Table 5 reports results for Eqs. (7) and (8) above. No significant results are found when Eq. (7) is estimated on the entire sample. However, when we partition the sample into affected and unaffected firms in Eq. (8), we obtain negative and significant coefficients for Del<sub>1</sub> (−.051,  $P < .01$ ) and Del<sub>2</sub> (−.03,  $P < .10$ ). These results suggest that the regulation had negative impact

<sup>14</sup> The potential nonsynchronous problem associated with daily data is unlikely to happen with monthly data. We therefore drop the market returns in the months immediately prior to and following the event month.

Table 4  
Canadian regression results using daily returns

Variable	Expected sign	Eq. (5)	Eq. (6)
Intercept		-.002*** (-3.26)	-.002*** (-3.27)
$R_{mt-1}$		.134*** (5.30)	.136*** (5.30)
$R_{mt}$		.8643*** (24.18)	.643*** (24.12)
$R_{mt-1}$		-.004 (-0.14)	.004 (-0.14)
Log (sales)		.0003*** (3.57)	.0003*** (3.59)
Del (November 18, 1985)	-	-.002 (-0.75)	-.003 (-1.16)
Ann (February 17, 1987)	-	-.002 (-1.12)	-.002 (-0.75)
Del $\times$ Dom	+		.004 (0.91)
Ann $\times$ Dom	+		-.0007 (-0.17)
Adjusted $R^2$		.03	.03

The  $t$  statistics are given in parentheses.

The estimation period is from September 1, 1985, through March 31, 1987.

\*\*\*  $P < .01$ , one-tailed tests where predictions are made.

on share prices of the MNCs in our sample. Positive and significant coefficients result for  $\text{Del}_1 \times \text{Dom}$  (.061,  $P < .01$ ) and  $\text{Del}_2 \times \text{Dom}$  (.035,  $P < .10$ ). These coefficients on the interactive terms reflect the incremental effect of the market reaction for domestic firms. The coefficients are added to the coefficients for  $\text{Del}_1$  and  $\text{Del}_2$  to assess the impact on domestic firms. From the summation, it is apparent that little or no market reaction is obtained for domestic firms. Although the significance level for the coefficients on  $\text{Del}_2$  and  $\text{Del}_2 \times \text{Dom}$  is weak ( $P < .10$ ), overall these findings suggest that the transfer-pricing regulation had a negative effect on MNCs but did not affect domestic firms.<sup>15</sup>

To test the robustness of the results for Canadian firms, foreign sales are incorporated into the model. Multicollinearity is introduced when percent of foreign sales enters the model and the coefficients are no longer significant. The event-date dummy variables and their interaction terms with the rank of percentage foreign sales are highly correlated. To minimize the problem, these variables are orthogonalized and then their orthogonalized residuals (which are uncorrelated with one another by construction) are used to repeat the regressions. These regression results are not materially different and are not reported here. We also ran the model including one-digit SIC codes to see if industry effects have any impact on our results. The coefficients were very similar to those reported.

These results provide some evidence of a potential redistribution of wealth from the MNCs to the government. However, other researchers have examined estimates of tax changes in response to heightened tax regulation. Manegold and Karlinsky (1988) compare their estimate of taxes raised to the Treasury estimates. No similar data are available for the Canadian sample.<sup>16</sup>

<sup>15</sup> We also ran a similar regression in which we interacted the size variable (log of sales) with the dates. Since there were no significant changes in the coefficients, these results are not reported in a table.

<sup>16</sup> Tax data for a smaller sample (15) of MNCs were available. Mean taxes paid in 1987 were significantly larger than those paid in 1986. Since the sample size is small, these results are not reported in a table.

Table 5  
Canadian regressions using monthly returns

Variable	Expected sign	Eq. (7)	Eq. (8)
Intercept		-.023*** (-2.85)	-.023*** (-2.93)
$R_{mt}$		.938*** (14.59)	.938*** (14.60)
Log (sales)		.004*** (3.22)	.004*** (3.30)
Del <sub>1</sub> (September, 1985)	-	-.016 (-1.12)	-.051*** (-2.33)
Del <sub>2</sub> (November, 1985)	+	-.011 (-0.78)	-.030* (-1.47)
Del <sub>3</sub> (March, 1986)	-	-.005 (-0.33)	-.011 (-0.509)
Ann <sub>1</sub> (October, 1984)	-	-.015 (-1.05)	-.018 (-0.86)
Ann <sub>2</sub> (February, 1987)	-	.001 (0.123)	-.013 (-0.95)
Del <sub>1</sub> × Dom	+		.061** (2.11)
Del <sub>2</sub> × Dom	-		.035* (1.31)
Del <sub>3</sub> × Dom	+		.011 (0.39)
Ann <sub>1</sub> × Dom	+		.006 (0.21)
Ann <sub>2</sub> × Dom	+		.028* (1.51)
Adjusted $R^2$		.13	.13

Numbers in the parentheses are *t* ratios.

The estimation period is from October, 1983, through September 1987.

\*  $P < .10$ , one-tailed tests when predictions are made.

\*\*  $P < .05$ , one-tailed tests when predictions are made.

\*\*\*  $P < .01$ , one-tailed tests when predictions are made.

The Canadian legislation attempted to regulate managers' use of transfer prices to avoid taxation by defining specific values (market based) that could be used for transfer price policy. While limited evidence of a market reaction is found, it appears the market did not believe this method would succeed. And indeed, it has not. Canadian courts have recognized the substantial difficulties in applying a legal standard based on a facts-and-circumstances test (Boidman, 1995). In disputes over taxes, MNCs have rarely had to increase their payments because of transfer price policy abuses.

#### 4. Conclusions and implications

We consider the effects of two different types of tax regulation designed to curtail income shifting by MNCs to avoid taxes. Under CFC regulation, Australia taxes income arising in low-tax countries as if it had arisen in the country of the parent corporation. In contrast, Canadian policy defines acceptable transfer prices as those that would be used if the transaction were an arm's-length transaction—usually market-based prices.

The Australian sample is partitioned into two groups of firms: those potentially affected by the regulation (firms with subsidiaries in low-tax areas to whom goods and services are transferred) and those unaffected (firms with no transfers to low-tax subsidiaries, domestic firms, or firms with subsidiaries in high-tax areas). With news of the introduction of CFC legislation (May 26, 1988), the stock market perceived that firms affected by the regulation would suffer, and firms that were unaffected might gain or at least not suffer.



According to an article in the Sydney Morning Herald (1995), several firms in the affected group have restructured since the CFC regulation went into effect. Some of these firms have been subject to special tax audits because the restructures are presumed to be a strategy to avoid the provisions of the CFC legislation. Firms appear to be moving capital away from nonlisted foreign countries (low-tax domiciles) to listed countries. Of the 34 firms targeted for special tax audits, eight of the firms used in this study were named in the article. Of these, five were in the “affected” partition and three were in the “unaffected” partition.

Canada issued a draft of new guidelines and policies about transfer prices in October 1984 that stipulated arm’s-length transaction (usually market) prices. Using monthly data, a negative and significant market reaction is found for affected firms on one event date, and negative and weakly significant reactions are found on two other event dates. Weakly positive or no reactions were found for the unaffected firms on the event dates. Evidence is provided of increased taxes paid by the sample of MNCs when a comparison is made between taxes paid the year before and the year after the regulation took place.

The implications of this study are important for policy makers. Although evidence of stock market reaction does not imply that regulation is effective, regulators may infer that many well-informed investors believe there will be some wealth redistribution because investors react to new information in an efficient manner.

Governments in Australia and the United States are auditing transfer price policies within MNCs to determine whether firms are complying with the regulations in place. Examination of the market reaction to news releases that detail the stringency of the audit standards and penalties for noncompliance would be an appropriate follow-up to this study.

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## Discussion

# Discussion of “International income-shifting regulations: Empirical evidence from Australia and Canada”

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## 1. Introduction

Eldenburg, Pickering, and Yu (2003) examine the effects of regulatory action intended to reduce tax-motivated international income shifting on the stock prices of firms expected to be affected by such regulation. They conduct two separate event studies. First, they investigate whether the introduction of controlled foreign corporation (CFC) rules by Australia adversely affected the stock prices of Australian firms with subsidiaries in low-tax countries relative to other Australian firms on key dates during the May 1988 to September 1990 timeframe. Second, they investigate whether the clarification of Canada's transfer-pricing regulations adversely affected the stock prices of Canadian multinational corporations relative to domestic Canadian firms on key dates during the October 1984 to March 1987 timeframe. My comments focus on the study's motivation and research design.

## 2. Motivation

What important question might this study answer? Tax-motivated income shifting is an important concern of governments with relatively high income tax rates because it tends to erode their tax bases, while potentially increasing the tax bases of the low-tax countries to which the income is shifted. In their introduction, Eldenburg et al. (2003) state that they undertake “empirical tests of the cash flow implications of [CFC rules and transferring pricing restrictions] to determine the perceived effectiveness of each individual approach” in

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restricting tax-motivated income shifting. If stock prices of affected firms decrease on key dates associated with the introduction of these rules, then one might conclude that investors believe these rules will effectively decrease income shifting and increase corporate tax payments.

Nevertheless, there are two problems with this motivation. First, there is no competing explanation for why investors might believe that these rules would *not* increase the tax liabilities of the firms at which they were directed. The Australian and Canadian tax rules that are the subject of this study are modeled after existing rules of other countries and, therefore, have a known degree of likely success. Because the governments of Australia and Canada are incurring some costs to implement these rules, it is safe to assume that the rules will likely increase tax revenues and, therefore, decrease the cash flows of some corporations. Similarly, the authors offer no explanation as to why investors would not differentiate between firms expected to be affected versus those unaffected by value-relevant changes in tax rules. Second, failure to detect a significantly negative effect cannot be interpreted as evidence that the rules are ineffective. Rather, a lack of significant results could be easily attributed to weaknesses in the research design and inherent limitations of the empirical data. Thus, the contribution of this study in terms of the motivation described above depends critically on finding evidence of a negative stock-price effect on the key event dates. These two problems create a dilemma in the study's motivation. If the authors find the proverbial needle in a haystack, then the result is in some sense obvious, and if they fail to find the needle, it is only because the haystack is too big. Unfortunately, this dilemma is not uncommon in accounting research.

Contrary to the impression given by the study of Eldenburg et al. (2003), CFC and transfer-pricing rules are *not* "alternative approaches" for reducing income shifting. Rather, each set of rules is designed to limit a different type of income shifting. For example, consider an Australian parent corporation with one wholly owned subsidiary domiciled in the United States, a listed country, and a second wholly owned subsidiary domiciled in Bermuda, an unlisted country. Assume that the corporations' marginal tax rates in Australia, the United States, and Bermuda are 39%, 34% and 0%, respectively. Also, assume that the United States is a significant market for the Australian parent corporation's products, which it sells exclusively through its U.S. subsidiary, and that the Bermudian subsidiary owns patents used by its parent and hold notes issued by its parent. Accordingly, the Bermudian subsidiary receives royalty and interest income from the Australian parent corporation. Because the U.S. tax rate is lower than the Australian tax rate, the parent can reduce its overall tax burden by using below market transfer prices for products shipped to its U.S. subsidiary. Transfer-pricing rules are necessary to prevent this type of income shifting. On the other hand, requiring the Australian parent to use arm's-length pricing with respect to the royalty and financing contracts with its Bermudian subsidiary would not eliminate the incentive or opportunity to shift income from Australia to Bermuda. However, subjecting the Bermudian subsidiary to the Australia's CFC rules does eliminate this opportunity. From this simple example we can see that both transfer pricing rules and CFC rules are necessary elements of any worldwide income tax system. Transfer pricing is necessary whenever there are cross-border transactions. CFC rules are necessary so long as sovereign tax-haven nations exist. In



fact, both Australia and Canada regulate transfer prices and both countries have their own form of CFC rules.<sup>1</sup>

With this background in mind, it is important to understand what questions cannot be answered by this study. First, this study cannot determine whether transfer-pricing rules are more or less effective than CFC rules in restricting income shifting because, as described above, these rules are designed to prevent different types of income shifting. Second, this study cannot assess the effectiveness of one tax rule in the absence of the other. Australia introduced CFC rules during the time period examined in this study, but already had transfer-pricing rules in effect. Similarly, Canada clarified its transfer-pricing rules, but already had CFC rules in effect. Although a country's current regulatory actions may pertain to one tax rule more than another, such actions do not mean that one rule is any less critical to its overall system of taxing multinational corporations.

### 3. Research design

#### 3.1. General issues

Eldenburg et al. (2003) use pooled time-series/cross-sectional regression models to test for share price effects of tax-regulatory events. The general form of their models is:

$$R_{it} = a + b_1 R_{mt-1} + b_2 R_{mt} + b_3 R_{mt+1} + c_1 \text{Event}_t + c_2 \text{Event}_t \times \text{Unaffected}_i + u_{it} \quad (1)$$

Simultaneously regressing raw returns ( $R_{it}$ ) on market returns ( $R_{mt}$ ) and event-indicator variables (Event and Event  $\times$  Unaffected) is an atypical approach for an event study and leads to three concerns. First, much of the explanatory power of these regression models derives from the correlation between firms' raw returns and the market return. For example, in the Australian analysis (Table 2) the coefficient on  $R_{mt}$  is essentially 1.0 and has a  $t$  statistic of 115! The effect of the experimental variable is, therefore, not highlighted.

Second, the approach of Eldenburg et al. (2003) forces the relationship between raw returns and the market returns to be constant across firms. In contrast, a standard market-model approach would permit firm-specific estimates of the relation between raw returns and market returns.

Third, in all cases this model is estimated over a very long period relative to the length of the event window. For example, in the Australian study, the regression is estimated using daily returns for approximately 830 trading days between June 1, 1987, and September 30, 1990. Consequently, a relatively small sample of 55 Australian firms and six event days (i.e., two-day windows for three events) is transformed into a very large sample of over 45,000 observations for purposes of estimating the regression model. The size of this sample could

<sup>1</sup> Canada's tax rules for "controlled foreign affiliates" (CFA) are conceptually similar to Australia's CFC rules.



affect the results of Eldenburg et al. (2003) in two ways. On the one hand, estimated standard errors decrease in sample size, thereby increasing statistical power. On the other hand, the variation in stock returns over such a long period may swamp the event-period effects. In sum, I think a simpler and more standard test would be more compelling.

### *3.2. Issues specific to the Australian study*

In general, Australia defines a CFC as a foreign corporation in which 50% or more of its interests are held or controlled, directly or indirectly, by five or fewer Australian residents (Bureau of National Affairs, 2002). Eldenburg et al. (2003) attempt to identify Australian corporations with CFCs using geographical segment information from the firms' financial statements. There are likely two problems with this approach. First, the segment information does not appear to differentiate branch operations from foreign-domiciled subsidiaries. Only the later category could potentially qualify as a CFC. Second, segment data does not provide enough information to apply the "50% control" test described above. Thus, geographical segment information provides at best a noisy indicator of whether the firm actually has a subsidiary that is a CFC.

Australia's CFC rules cause the income of a CFC to be attributed to its Australian parent if and only if the CFC is not taxed in a country with tax rates comparable to those of Australia (i.e., listed countries). Eldenburg et al. (2003) classify firms into three groups based on the countries in which they operate and whether or not transfers are made between the Australian firm and its foreign segments. Firms with operations only in listed countries are classified as HT (high-tax) firms. Firms with operations in unlisted countries are classified as LT (low-tax) firms if transfers were made between the firm and its foreign segment, and as NT (no-transfer) firms if no intrasegment transfers were made. Eldenburg et al. argue that LT firms are most likely to be negatively affected by passage of Australia's CFC rules, whereas NT and HT firms should be unaffected. However, Australia attributes a CFC's income to its Australian parent whether or not there are transfers between the two companies. Consider, for example, a CFC in an unlisted country that generates interest income from an investment portfolio. Prior to the effective date of Australia's CFC rules, this income would escape Australian tax until the CFC made a dividend distribution to its Australian parent. After the effective date of the CFC rules, this interest income is attributed to the Australian parent whether or not there is a dividend distribution. To avoid double taxation, if attributed income of a CFC is later distributed to the parent, then the distribution is exempt from Australian tax. Thus, transfers between a CFC and its parent are not necessary to trigger application of the CFC rules and, if transfers represent dividend distributions to the parent, would even negate the effect of these rules. The distinction between LT and NT firms may be either irrelevant or could have an effect opposite that predicted by the authors (i.e., the CFC rules could affect NT firms more negatively than LT firms).

How do these predictions stack up against the empirical results in Table 2 of Eldenburg et al. (2003)? The only significant results relate to returns on May 26 and 27, 1988 (i.e., *DelI*). The estimated daily abnormal return over this two-day period is  $-1.4\%$  per day for LT firms,  $0.6\%$  for NT firms, and  $-0.9\%$  for HT firms. These estimates are not entirely consistent with

the tax story which, according the Eldenburg et al., holds that LT and HT firms should experience the most dissimilar returns or, in the alternative explained above, that NT firms might be the most negatively affected.

Is there an alternative explanation for these results? First, it is important to recognize that Australia's CFC rules were proposed simultaneously with a host of other tax provisions, many of which would seem to be more consequential than the CFC rules. Other proposals included lowering the corporate income tax rate from 49% to 39%, removing accelerated depreciation benefits, and substantially reducing tax benefits for research and development (R&D) expenditures (World Tax Report, 1988). Importantly, because of limits on foreign tax credits, Australian multinational firms would not fully benefit from the proposed decrease in Australian tax rates to the extent that their foreign income is being taxed at more than 39% by foreign governments. Thus, the proposed tax-rate decrease could differentially affect firms in the LT, NT, and HT groups. Effects of the proposed depreciation and R&D rules are likely to differ across industries, but industry effects are not controlled for in this study. Second, given that there are only 13 LT firms, it would have been a relatively simple matter for the authors to examine the returns for this two-day period on a firm-by-firm basis. Did all 13 firms experience negative returns on these days, or are the negative returns confined to a subset of firms? If the later, then are there firm-specific events that would explain the negative returns for these firms on these particular days?

### *3.3. Issues specific to the Canadian study*

Eldenburg et al. (2003) also attempt to investigate whether various announcements and deliberations leading up to the issuance of Information Circular 87-2 (hereafter IC 87-2), which explains how Revenue Canada will apply the "arm's-length" transfer-pricing standard, adversely affected Canadian multinational corporations relative to Canadian corporations without any foreign subsidiaries. I have four concerns with this analysis.

First, the authors provide no *a priori* reason to expect a significant market reaction to this series of events. As a member of the Organization for Economic Cooperation and Development (OECD), Canada already had implicitly adopted the OECD's 1979 guidelines for transfer pricing based on the "arm's-length" standard and acceptable methods for adhering to this standard (e.g., comparable uncontrolled price method). Furthermore, most related-party international trade by Canadian firms is with U.S. affiliates, and the preexisting tax treaty between the United States and Canada already imposed the "arm's-length" standard. Eldenburg et al. (2003) need to show that investors expected a material difference between accepted transfer-pricing practices before and after IC 87-2.

Second, companies do not publicly disclose the transfer prices they use for tax-reporting purposes. Suppose that, prior to IC 87-2, some firms used tax-minimizing transfer prices that did not reflect arm's-length prices, while other firms used transfer prices based on the arm's-length standard. How could investors distinguish between these two types of firms? Eldenburg et al. (2003) implicitly assume that all multinational firms are noncompliant and, therefore, would be adversely affected by IC 87-2. However, they offer no evidence to support that assumption.



Third, even if IC 87-2 adversely affected the stock prices of all Canadian multinational firms, it would be very difficult to detect this effect because of the lengthy time period over which it may have been impounded (i.e., from initial release in October 1984 to final release in February 1987). Because stock prices tend to be highly variable, successful event studies require material price effects and precise event dates. Neither requirement is present in this study. Eldenburg et al. (2003) find no significant price effects in their analysis of daily returns for which the event dates are well specified (Table 4). The only significant result for the Canadian study is based on the analysis of monthly returns (Table 5), which, as discussed below, might easily be attributable to other causes.

Fourth, the analysis of monthly returns data essentially tests whether Canadian multinational firms experienced more negative returns than Canadian domestic firms during any of five specified months. This is a very blunt test for which results could be easily influenced by correlated omitted variables. According to the regression estimates, Canadian multinational firms experienced returns during September 1985 that were 6.1% lower than those experienced by domestic firms for that month, but did not experience returns significantly different from domestic firms in any of the other four months.<sup>2</sup> The estimated magnitude of this effect is huge, but can it be attributed to the release by Revenue Canada of its fourth draft of IC 87-2? One would expect the cause of such a significant decline in stock values to be discussed in Canada's leading newspapers. However, after applying numerous search terms to the Lexis-Nexis database for the month of September 1985, I found no articles on Revenue Canada's proposed guidance on transfer pricing. Instead, I found several articles expressing concern over declining Canadian exports (Canadian Press, 1985) and the increasing U.S. sentiment toward protectionist trade policies (Goodspeed, 1985) in response to its own growing trade deficit. Hence, it is reasonable to conclude that concerns about future exports were a much more likely cause of the observed difference.

#### **4. What can we learn from this study?**

As discussed above, the research question addressed by Eldenburg et al. (2003) is whether investors believe that tax rules intended to restrict international income shifting are effective and, therefore, will decrease the stock values of affected firms. Unfortunately, this study provides no convincing answer to this question.

Perhaps the most important lessons we can learn from this study are the inherent difficulties in conducting event studies of the effects of tax regulations in foreign countries. In addition to the normal problems encountered in any event study (e.g., isolating the event of interest and teasing out its effect on what are typically noisy stock-return data); there are the added difficulties of understanding and explaining the tax rules of another nation. In concept, studies like Eldenburg et al. (2003) could be very useful because the adoption of unique tax rules by one country might serve as a natural experiment from which we could learn about the

<sup>2</sup> The Toronto Stock Exchange 300 Index registered a 6.7% decline during September 1985 (from 2820 to 2632). This overall market return is presumably controlled for in the regression analyses.



effects that rule might have if adopted by another country. Researchers contemplating such an investigation would be well advised to read this study.

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Reply to Discussant's Comments

## International income shifting regulations: empirical evidence from Australia and Canada

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### 1. Motivation

We did not intend to compare the types of government regulation but were simply documenting the market's reaction to the perceived effectiveness of different types of regulation in different countries. We feel that different legal, institutional, and cultural environments could easily result in tax rules that are successful in one country but unsuccessful in another country. While countries use both types of regulation, emphasis is usually placed on one in promoting new regulations. We quote from the Australian government's introduction to the CFC legislation presenting their view of the effectiveness of transfer price regulation. The article suggests that transfer price regulation may be ineffective in Australia and implies that the CFC is an alternative approach.

If it were true that tax rules can be assumed to succeed simply because governments incur costs to implement regulation, every tax rule set by every government would increase tax revenue every time. There is no research evidence suggesting that the political process of setting tax rules always results in the expected increase in tax revenues, this is an empirical question. Tax rules, such as the CFC in Australia, are not static from the time they are first proposed to the time they are actually enacted—so they are not “perfect” in their initial form. Governments would not continually modify tax rules and introduce new ones if the existing regulation worked in the way the government had intended. So one cannot simply assume a new tax rule will reduce cash flows of some corporations as stated in the commentary.

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Tax rules should not be expected to affect all firms equally. Investors would want to differentiate firms affected from those unaffected. Our intent was to use publicly available information to determine whether investors could differentiate these firms successfully. Yes, we agree that investors would want to differentiate firms—the question is, are they actually able to do that? Failure to detect hypothesized results can always be attributed to poor research design or data. We feel that a strength of our research design is our ability to differentiate firms (i.e., partition on affected and unaffected firms).

## **2. Research design**

There are five areas in the commentary that we wish to address, namely, (1) the regression model used, (2) the partitioning of firms using geographic segment data, (3) other coinciding tax changes in Australia, (4) the Australian foreign tax credits, and (5) industry effects.

1. In earlier versions of the paper, we used firm-specific estimates of the relationship between raw returns and market returns and found similar results to those reported in the paper. We chose to report the results as we did because they are easier to present and interpret.
2. Geographic segment data were supplemented using the list of subsidiaries and their location (see footnote 7). This list is of subsidiaries, not branch operations, so we were able to distinguish between the two. In addition, the 50% rule for consolidation of subsidiaries was in effect during this time period, so we can assume that these subsidiaries were 50% or more owned by the reporting parent company.
3. Footnote 4 acknowledges that there were other tax changes and also states that information about the other major changes was widely disseminated prior to May 25, 1988. For example, an Australian newspaper article discussed the numerous hours spent by accountants prior to May 25 in setting up corporate affairs to relieve any impacts from the new depreciation rules.
4. There were limits on foreign tax credits (up to the Australian corporate tax rate), but Australia was reducing its corporate tax rate to match rates in other countries. Even at the reduced rate of 39%, there were likely to be few countries with higher rates.
5. Industries are relatively equal across our partitions. It is unlikely that industry effects are a problem.

We hope this assists in clarifying our position with regard to the discussant's comments.

## **Acknowledgements**

We thank Bryan for his comments and welcome the opportunity to reply and thus clarify our study in some of the areas he found troublesome.



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# The effects of legal regime on the patterns of stock returns surrounding ADR earnings announcements<sup>☆</sup>

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## **Abstract**

This study examines the effects of legal regime on the patterns of stock returns surrounding the earnings announcements of American Depositary Receipt (ADR) programs. My results indicate that the properties of accounting earnings associated with the local legal regime of an ADR program spill over to U.S. GAAP reconciled earnings. In particular, I find that the market reacts significantly to the earnings announcements of the ADR programs from common law countries whose accounting earnings are known to be more conservative and timely, but not to those of the ADR programs from code law countries where the earnings are known to be less conservative and timely.

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*Keywords:* ADR (American Depositary Receipt); Cross listing; Earnings announcement; Code law; Common law

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## **1. Introduction**

La Porta, Lopez-de-Silanes, Shleifer, and Vishney (1997) compare external finance across 49 countries as a function of the origin of their laws, the quality of legal investor protections, and the quality of law enforcement. They find strong evidence that the legal environment has

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large effects on the size and breath of capital markets across countries. Extending their finding, Ball, Kothari, and Robin (2000) (BKR hereafter) have shown that differences in the demand for accounting income in different institutional contexts cause the properties of accounting income to vary internationally. They find that the timeliness and the degree of conservatism of accounting data depend on international institutional differences. In particular, they find that the accounting earnings of common law country enterprises are more timely and conservative than those of code law country enterprises. They attribute the higher level of conservatism in the common law country accounting numbers to the use of accounting income in common law arm's-length debt and equity markets and especially common law litigation.

Extending their finding, this study examines whether the properties of accounting earnings associated with legal regimes spill over to non-U.S. firms cross listed in the United States, i.e., American Depositary Receipt (ADR) programs. The spillover hypothesis tested in this study refers to the possibility that the accounting earnings of non-U.S. firms cross listed in the United States, reported in compliance with the U.S. reporting standards, demonstrate similar properties observed in their local earnings prepared under local GAAP.

There are at least two potential explanations for why the spillover may occur. The first one that focuses on the supply effect is that the underlying economic conditions are fundamentally "untranslatable" under a uniform reporting standard (Baumol & Malkiel, 1993). Chan and Seow's (1996) empirical evidence, which shows that the U.S. stock returns associate more with local GAAP earnings than the U.S. GAAP earnings, lends support to this conjecture. Yet another possibility is that the spillover may be observed if the market participants are functionally fixated to the properties of accounting earnings associated with the local legal regime of the cross-listed firms.

In this study, I use the market's reaction around the earnings announcement dates to investigate this issue based on the premise that an observed revision of stock prices associated with the release of the earnings figures would provide evidence on the information content of earnings, which would be affected by the quality of the released earnings numbers (Ball & Brown, 1968).<sup>1</sup> Following BKR (2000), an ADR program whose local economy is situated in Australia or the UK is classified as a common law ADR, and the one in France, Germany, or Japan is classified as a code law ADR.

To the extent that accounting disclosure reduces a firm's cost of capital and increases firm value by increasing liquidity (see for instance, Diamond & Verrachia, 1991) and that timeliness and degree of conservatism represent unique dimensions of disclosure quality, the spillover hypothesis predicts that the market's reaction will be larger for the common law ADRs whose home country earnings are known to be of higher quality on the two

<sup>1</sup> Specifically, "usefulness" refers to the decision usefulness of accounting numbers (such as relevance and reliability of earnings figures), which would be affected by both the content and timing of existing earnings numbers. However, the link between value relevance, conservatism, and market reaction is less obvious and thus can be viewed as an open empirical question.



dimensions.<sup>2,3</sup> Such evidence would indicate that the reconciled U.S. GAAP earnings of ADR programs from different legal regimes have differential information content in the U.S. market and suggest that the current reporting requirement fails to produce comparable earnings figures between the two groups of firms.

The current SEC policy for cross-listed firms requires that they either complete Form 20-F that reconciles foreign GAAP with U.S. GAAP or fully comply with the U.S. GAAP. Two critical assumptions underlying this policy, as Chan and Seow (1996) note, are the following. First, a disclosure system that allows foreign firms to use home country GAAP would put U.S. firms at a competitive disadvantage due to their greater disclosure costs. The second assumption is that the information disclosed by foreign firms under home country standards is inferior to the information disclosed by U.S. firms, and as a consequence the two types of information are not directly comparable. In brief, the current policy aims at leveling the playing field between the United States and international firms cross listed in the United States by producing more comparable accounting numbers through the reconciliation.

By examining whether the effects of international institutional factors spill over to ADR programs, this study primarily relates to two streams of research. First, this paper contributes to the growing literature on ADR programs (Alford, Jones, Leftwich, & Zmijewski, 1993; Amir, Harris, & Venuti, 1993; Frost & Pownall, 1994). In particular, this study examines a sample of ADRs that conform to the U.S. GAAP. Second, this study contributes to the literature on the effects of international institutional factors on the properties of accounting earnings (see for instance, Ali & Hwang, 2000; BKR, 2000; Hung, 2001; Joos, 1998; Leuz, Nanda, & Wysocki, 2001). In light of the growing importance of ADR programs in the United States and the global economy, the question I examine, i.e., whether the effects of international institutional factors spill over to ADR programs, is both timely and relevant to academics and policy makers alike.

Consistent with this prediction, my evidence indicates that the market reacts significantly to the earnings announcements of common law ADR programs but not to those of code law ADR programs. These results indicate that even after 20-F reconciliation, the properties of accounting numbers associated with the local legal regime of a non-U.S. firm cross listed in the United States have influence on the properties of the U.S. GAAP earnings of the ADR programs.

The next section provides some institutional background on the ADR programs and a brief overview of the related literature. In Section 3, I describe the sample. In Section 4, I explain the methodology and discuss the findings. In Section 5, I perform the sensitivity test. I conclude in Section 6.

<sup>2</sup> For instance, *Statement of Financial Accounting Concepts No. 2* (Financial Accounting Standards Board, 1980) states that timeliness is an ingredient of primary quality (relevance) of accounting information.

<sup>3</sup> Ball and Brown (1968) argue that “a message is said to convey information if it causes a change in the receiver’s probability distribution of the concerned random variable. Such a change in the probability distribution (beliefs) will trigger an action; hence, if an action (reflected in stock price, for instance) can be attributed to specific information, such information is considered useful.” Although I am not aware of a particular study that establishes a clear link between the degree of conservatism in earnings and information content, I believe that it is reasonable to posit that more (less) timely earnings would have higher (lower) information content.

## **2. Institutional background and related literature**

ADR is a U.S. security issued by a U.S. agency (e.g., a bank) for a non-U.S. firm cross listed under the U.S. securities act of 1934. It was created in 1972 by J. P. Morgan as a measure for U.S. investors to participate in the London Stock Market (Miller, 1999). It is a negotiable security, which is issued by a U.S. commercial bank backed by equity shares of the non-U.S. firm. As of February 2000, ADR programs represent approximately one tenth of the total U.S. shares, and their size has been growing rapidly at the rate of 30–40% annually. They trade on major stock exchanges (NYSE, ASE, or NASDAQ) or over-the-counter (OTC) market in U.S. dollars and pay dividend or interest in dollars. They also settle, clear, and transfer according to standard U.S. practices. They have gained popularity in recent years as a means of global diversification within an investor's portfolio.

Currently, there are four major levels of ADR programs available—Level I, Level II, Level III, and 144a. Level I ADR programs trade on the OTC market, and they are subject to home country accounting standards. Levels II and III trade on major stock exchanges such as NYSE, AMEX, or NASDAQ, and firms that issue these levels of ADR programs must meet full SEC disclosure requirements and meet the listing requirements of the U.S. exchange where they choose to list. Both Levels II and III programs require the firm to complete Form 20-F (and a semiannual Form 6-K) that reconciles foreign GAAP earnings with the corresponding U.S. GAAP figure or alternatively to file a 10-K report. While these three types of programs are traded publicly, the last type of program called “144a” is placed privately to qualified institutional investors. As a result, the 144a (also referred to as PORTAL) does not require compliance with U.S. GAAP. Due to these reasons, it has been pointed out that the listing and reporting requirements for ADR programs are in general less stringent than those for U.S. firms (Alford et al., 1993).

Amir et al. (1993) provide evidence that earnings and shareholders' equity reconciliation to U.S. GAAP included in 20-F statements are value relevant. They further find that individual items of reconciliation such as goodwill and asset revaluations are also value relevant. Alford et al. (1993) report the value relevance of financial accounting data from 16 countries available on Global Vantage Database. They find that consolidated earnings, as reported in 20-F reconciliation, are more value relevant than unconsolidated earnings. Frost and Pownall (1994) examine international firms cross listed in the United States and the United Kingdom. Their finding suggests that the immediate usefulness of accounting information is conditional on characteristics (such as liquidity) of the capital market.

Joos (1998) examines some institutional characteristics of three European countries, i.e., the UK, France, and Germany. He finds that the estimated coefficients on book values are reliably higher in Germany and France than in the UK, but the earnings multiple estimated in the price regressions is not reliably different in the UK than in the other two countries.

La Porta et al. (1997) show that countries with poorer investor protections, measured by both the character of legal rules and the quality of law enforcement, have smaller and narrower capital markets (i.e., both equity and debt markets). BKR (2000) find that international differences in the demand for accounting income predictably affect the timeliness and the degree of conservatism of the accounting numbers. They partition their



sample into two groups based on the institutional difference (common law vs. code law) and find that common law earnings are more timely and conservative.

Ali and Hwang (2000) explore the relation between measures of value relevance of financial accounting data and several country-specific factors. They find that the value relevance is lower for continental model countries than for British–American model countries, and that the value relevance is lower when tax rules significantly influence financial accounting measurements. Hung (2001) finds that the use of accrual accounting (versus cash accounting) negatively affects the value relevance of financial statements in countries with weak shareholder protection. Leuz et al. (2001) find that the degree of investor protection across countries affects the practice of earnings management.

### 3. The sample

The sample consists of ADR programs that use U.S. GAAP as their primary reporting standard with required data available between 1990 and 1997. A list of currently available ADR programs as of February 2000 was identified from the Depositary Receipts Directory administered by the Bank of New York (2000).<sup>4</sup> Following the list, necessary data are collected from Compustat and CRSP. Specifically, the sample consists of firms that (1) are listed in the Bank of New York ADR Directory (2000); (2) have their local economy situated in one of the five countries—Australia, France, Germany, Japan, and the UK; (3) have annual earnings announcement dates available in Compustat; and (4) have required return data on CRSP excess returns tape. To reduce the effects of outliers, I eliminate observations whose return figures fall outside of three standard deviations from the mean return. One firm-year observation is dropped from the sample based on this criterion. The final sample consists of 79 firm-year observations that meet these requirements.<sup>5</sup>

Tables 1–3 provide summary characteristics of the ADR programs included in the sample. The UK, followed by Japan, has the largest number of firms represented in the sample. The common law sample that includes ADR programs whose local economy is situated in Australia and the UK have approximately twice as many firm-year observations ( $n = 54$ ) than the code law sample that consists of ADR programs from France, Germany, and Japan ( $n = 25$ ). The sample firms represent 16 different industries and there seems to be no clear pattern in the industry distribution of firms in the two samples (i.e., the common law and the code law).

Table 2 reports a correlation matrix for selected variables. The institutional factor (legal regime) dummy variable is set as one (zero) for the common law (code law) sample. The

<sup>4</sup> This data source is used to identify the list of ADRs since the local economy can readily be identified from this source.

<sup>5</sup> A conversation with Compustat representative has revealed that, prior to year 2000, Compustat collected and reported the earnings announcement dates of non-U.S. firms cross listed in the United States that released earnings through various newswires. The sample size in this study is comparable to that of other studies that examine ADR securities. For instance, Frost and Pownall (1994) had 110 observations and Barth and Clinch (1996) had 85 observations.



Table 1

A summary of the countries represented by the ADR programs included in the sample

## Panel A: country distributions

	The number of ADR programs	The number of firm-year observations	Legal regime
Australia	1	6	Common
France	3	3	Code
Germany	1	1	Code
Japan	5	21	Code
United Kingdom	14	48	Common
Total	24	79	

## Panel B-1: industry distribution (entire sample)

Industry	Number of firms
Airlines	1
Automobile	1
Beverage	2
Chemicals	1
Consumer electronics	2
Construction	1
Electrical equipment	2
Machinery	1
Food	1
Mining and minerals	1
Multi-industry	1
Oil and gas	2
Pharmaceutical	3
Printing and publishing	1
Software	1
Telecommunication	3

## Panel B-2: industry distribution (common law and code law samples)

Industry	Common law ADRs	Code law ADRs
Airlines	1	0
Automobile	0	1
Beverage	2	0
Chemicals	1	0
Consumer electronics	1	1
Construction	0	1
Electrical equipment	0	2
Machinery	1	0
Food	1	0
Mining and minerals	1	0
Multi-industry	1	0
Oil and gas	1	1
Pharmaceutical	1	2
Printing and publishing	1	0
Software	0	1
Telecommunication	3	0

Industry classification is based on the Bank of New York Global Investors' Guide (2000).

Table 2

Correlation matrix (Pearson)

	Legal regime	Size	News (earnings surprise)
Legal regime	1.0000		
Size	– .0788	1.0000	
News	– .0457	.1947	1.0000

Industry classification is based on the Bank of New York Global Investors' Guide (2000). Size is measured as the log of market value of equity (Compustat Annual Item #199 multiplied by Item #25). News (earnings surprise) is measured as change in annual EPS (this year's EPS – last year's EPS) deflated by the beginning of period price.

correlation between legal regime and size is negative, indicating that the code law ADR programs are, on average, larger than the common-law counterparts.

Table 3 reports firm characteristics. Consistent with Table 2, it shows that firms in the code law sample are slightly larger than those in the common law sample. However, the common

Table 3

Descriptive statistics of the ADR programs included in the sample

	Mean	Median	S.D.	Max	Min
<i>Entire sample (n = 79)</i>					
BM ratio	0.5222	0.4945	0.3155	1.2889	0.01480
EP ratio	– 0.0071	0.0123	0.1158	0.0608	– 0.9546
Ln (size)	9.4860	9.6874	1.1696	11.1914	4.5652
3-Day CAR	0.0061	– 0.0004	0.0331	0.0998	– 0.05665
5-Day CAR	0.0052	– 0.0027	0.0451	0.1236	– 0.1059
7-Day CAR	0.0057	0.0033	0.0465	0.1018	– 0.1177
<i>Common law ADR sample (n = 54)</i>					
BM ratio	0.4138	0.4049	0.2764	1.1625	0.0148
EP ratio	– 0.0159	0.0135	0.1401	0.0470	– 0.9546
Ln (size)	9.3697	9.5716	1.2639	11.1914	4.5652
3-Day CAR	0.0117	0.0038	0.0360	0.0998	– 0.0378
5-Day CAR	0.0129	0.0041	0.0474	0.1235	– 0.0880
7-Day CAR	0.0117	0.0069	0.0492	0.1019	– 0.1177
<i>Code law ADR sample (n = 25)</i>					
BM ratio	0.7495	0.7509	0.2716	1.2889	0.2376
EP ratio	0.0111	0.0107	0.0172	0.0608	– 0.0204
Ln (size)	9.7278	9.9556	0.9204	10.4521	6.0816
3-Day CAR	– 0.0055	– 0.0043	0.0227	0.0291	– 0.0566
5-Day CAR	– 0.0108	– 0.0150	0.0360	0.0741	– 0.1059
7-Day CAR	– 0.0065	– 0.0075	0.0385	0.0800	– 0.1008

BM is common equity (Compustat Annual Item #60) plus deferred tax (Compustat Annual Item #74) divided by size, EP is earnings per share (Compustat Annual Item #53) over fiscal year-end price (Compustat Annual Item #199), and size is measured as market value of equity (Compustat Annual Item #199 multiplied by Compustat Annual Item #25). CAR refers to cumulative abnormal return computed using size-adjusted excess return available in CRSP. Two firm-year observations that do not have BM and size variables available are excluded from this part of analysis. The results are qualitatively similar when they are included.

law ADR programs have lower book-to-market ratio, indicating that there are more growth firms in the common law ADR sample than in the code law ADR sample.

#### 4. Method and results

The market's reaction to an earnings announcement is measured using a 3-day (Day – 2 to Day 0), 5-day (Day – 2 to Day +2), and 7-day (Day – 2 to Day +4) window. The market's reaction is measured by the size-adjusted excess return available on CRSP.<sup>6</sup> BKR's (2000) results indicate that the accounting earnings of firms in the common law countries are more conservative and timely than those in the code law countries, suggesting that the earnings of firms in the common law countries are of higher quality than those of firms in the code law countries on these two dimensions.<sup>7</sup> If such properties spill over to ADR programs (the spillover hypothesis), a greater market reaction around an earnings announcement is expected for a common law ADR program than for a code law ADR program. However, if the current reporting requirement, i.e., 20-F reconciliation, effectively eliminates such differences in the properties of local earnings, one should not observe a systematic difference in the market reaction around the announcements. These results are reported in Table 4.

Panel A of Table 4 shows that the market on average reacts significantly to the earnings announcement of a common law ADR program but not to that of a code law ADR program. In the common law sample, average cumulative abnormal return (CAR hereafter) is significantly different from zero ( $P < .1$ ) in all three windows, while there is no significant reaction in the code law sample. Consistent with the spillover hypothesis that predicts different degrees of market reaction between the two groups of ADR programs, the difference in 3- and 5-day CAR between the two groups is statistically significant ( $P < .1$ ).

In Panel B and C of Table 4, I partition the sample based on the direction of news and size. This analysis is motivated by previous studies that document an association between these two variables and the patterns in stock returns around earnings announcements (Atiase, 1985; Collins, Kothari, & Rayburn, 1987; Nwaeze, 2000). Nwaeze (2000) finds that the market's reaction to an earnings announcement is inversely related to the direction of news, i.e., a greater reaction to a bad news firm at the time of announcement. Atiase (1985) and Collins et al. (1987) document that the magnitude of the market's reaction to an earnings announcement is inversely related to firm size. I define the direction of news as change in annual EPS, deflated by the beginning-of-the-period price, and size as the log of market value of equity.<sup>8</sup>

<sup>6</sup> Using beta-adjusted returns yields qualitatively similar results.

<sup>7</sup> To the extent that the usefulness of accounting earnings could be impaired by deficiencies in timeliness, it is expected that the market will react more to timely earnings report.

<sup>8</sup> I define earnings surprise in this manner instead of using the analysts' forecasts from I/B/E/S to preserve the sample size. Using the median consensus analysts' forecasts available in I/B/E/S results in a smaller sample size, but the results remain qualitatively similar.



Table 4

The market's reaction to the earnings announcements of ADR programs

	3-Day CAR	5-Day CAR	7-Day CAR
<i>Panel A: the entire sample and the common law versus the code law ADR sample</i>			
The entire sample	0.00614 (1.6262)	0.00525 (1.0193)	0.00576 (1.0860)
The common law ADR sample ( $n=54$ )	0.01174 (2.3496)**	0.01296 (1.9743)*	0.01166 (1.7089)*
The code law ADR sample ( $n=25$ )	-0.00549 (-1.2093)	-0.01081 (-1.5009)	-0.00650 (-0.8435)
Difference <sup>a</sup>	0.01723 (2.1873)**	0.02377 (2.2179)**	0.01816 (1.6203)
<i>Panel B: good news versus bad news ADR sample</i>			
The good news sample ( $n=33$ )	0.00554 (0.9170)	0.00392 (0.5099)	0.00585 (0.7562)
The bad news sample ( $n=38$ )	0.00321 (0.6460)	0.00109 (0.1708)	0.00117 (0.1565)
Difference <sup>b</sup>	0.00232 (0.2990)	0.00282 (0.2810)	0.00467 (0.4333)
<i>Panel C: large versus small ADR sample</i>			
Large firm sample ( $n=40$ )	0.00271 (0.5922)	0.00246 (0.4204)	0.00210 (0.3391)
Small firm sample ( $n=38$ )	0.00867 (1.4265)	0.00608 (0.6959)	0.00762 (0.8630)
Difference <sup>a</sup>	-0.00597 (-0.7893)	-0.00362 (-0.3474)	-0.00553 (-0.5163)

The 3-, 5-, and 7-day windows are measured using Days -2 to 0, +2, and +4, respectively. Earnings surprise is measured as change in annual EPS (this year's EPS - last year's EPS) deflated by the beginning of period price. CAR is computed by cumulating daily size-adjusted excess return available on CRSP. *T* statistics are in parentheses. Two firm-year observations that do not have BM and size variables available are excluded from this part of analysis. The results are qualitatively similar when they are included.

<sup>a</sup> This refers to the difference in the means between the common law and the code law sample (common law minus code law).

<sup>b</sup> This refers to the difference in the means between the good news and the bad news sample (good minus bad).

\* Significant at 10% level using two-tailed test.

\*\* Significant at 5% level using two-tailed test.

The results suggest that the patterns in stock returns after an earnings announcement in the sample are associated with neither firm size nor the direction of news in the sample.<sup>9</sup> Overall, these results suggest that the hypothesized association between the legal regime of local economy and the information content of accounting information of the cross-listed firms is not subsumed by either the direction of news or firm size.<sup>10</sup>

## 5. Sensitivity tests

Unequal sample size between the code law sample and the common law sample can be a concern. This is because the earlier results could have been driven by the fact that the

<sup>9</sup> Some plausible explanations for the weak explanatory power of the direction of news are predisclosure period information leakage and inaccuracy of earnings expectation model, among others.

<sup>10</sup> For completeness, I partition the sample based on the institutional factors and then on the direction of news and on firm size (the results not reported). The market's reaction is insignificant in all cases, consistent with the earlier finding in the Panel B and C of Table 4. I also three-way split the sample based on the institutional factors, size, and then on the sign of earnings. The results are similar to those of the two-way split (the third partitioning does not provide additional insights).

Table 5  
Matched sample characteristics

		Code law sample	Common law sample	U.S. sample
Number of firm-year observations each year	90	1	1	0
	91	4	4	5
	92	5	5	6
	93	1	1	1
	94	1	1	1
	95	3	3	3
	96	5	5	6
	97	5	6	4
Firm	Mean	9.535	9.701	9.625
Size	Median	9.925	9.575	9.473
Market's reaction ( <i>P</i> values)	3-Day CAR	.0004 (.961)	.0142 (.025)**	.0129 (.006)***
	5-Day CAR	–.0064 (.448)	.0140 (.098)*	.0120 (.018)**
	7-Day CAR	–.0026 (.756)	.0130 (.177)	.0150 (.029)**

The matched samples are formed based on year and firm size. Firm size refers to the natural logarithm of the market value of equity at fiscal year end. CAR is size-adjusted excess return obtained from CRSP excess return tape. The U.S. sample is constructed from a list of Fortune 500 companies. To be included in the sample, a firm must have available data in Compustat (market value of equity and earnings announcement date) and CRSP (size-adjusted excess return). Each group has 26 firm-year observations. *P* values are in parentheses.

\* Significant at 10% level.

\*\* Significant at 5% level.

\*\*\* Significant at 1% level.

common law sample contains more firms than the code law sample and therefore had more statistical power. To alleviate this concern, I perform a match sample test in this part of analysis. In doing so, I also construct a U.S. firm matched sample as a reference. Given that ADRs tend to be large firms, a selection of Fortune 500 firms is used to form the U.S. matched sample. Firms are matched by year and firm size and then chosen randomly to provide a control for year-wide macroeconomic factors and information environment the firms are subject to.

Summary statistics of the matched samples are provided in Table 5. The observations are fairly evenly spread out through the sample years. The median firm sizes are also very similar: 9.53 in the code law sample, 9.70 in the common law sample, and 9.63 in the U.S. sample. The market's reaction is strongest in the U.S. sample and weakest in the code law sample. In Table 6, I test for the difference in CARs using both parametric *t* statistic and nonparametric *z* statistic (obtained from Wilcoxon matched pairs signed ranks test procedure).<sup>11</sup> For brevity, only *P* values are shown.

The results indicate that while the difference in CAR is significant between the code law sample and the other two (i.e., the common law sample and the U.S. sample) under both tests,

<sup>11</sup> This statistic does not require strict distributional assumptions such as normality of the error terms.

Table 6  
Return difference in the matched samples

		Code law sample	Common law sample	U.S. sample
Difference in 3-day CAR ( <i>P</i> values)	Code law sample		.1219	.0796 *
	Common law sample	.0912 *		.8656
	U.S. sample	.0399 *	.8689	
<i>Panel B: difference in 5-day CAR</i>				
Difference in 7-day CAR ( <i>P</i> values)	Code law sample		.0701 *	.0548 *
	Common law sample	.0912 *		.9511
	U.S. sample	.0490 **	.9899	
<i>Panel B: difference in 7-day CAR</i>				
Difference in 7-day CAR ( <i>P</i> values)	Code law sample		.2109	.1343
	Common law sample	.1742		.8956
	U.S. sample	.1373	.8889	

Above/below the diagonal shows *P* values from parametric *t* test and nonparametric *z* test.

Shown below (above) the diagonal are *P* values from parametric (nonparametric) *t* test (Wilcoxon sign-rank test) that tests for the difference in CARs over 3-, 5-, and 7-day windows.

\* Significant at 10% level.

\*\* Significant at 5% level.

the difference between the common law sample and U.S. sample is insignificant in all cases. They also show that although the difference is most significant at the conventional level over a 5-day window, most of the difference disappears over 7 days. These results complement my earlier findings and show that the market's reaction to common law (code law) ADR earnings announcements are quite similar (dissimilar) to its reaction to U.S. earnings announcements.

Next, given the results reported in Panel C of Table 4, which could be due to change in annual earnings being an imperfect proxy for news in my sample firms, I perform an

Table 7  
The market's reaction to the earnings announcements of ADR programs (the squared return metric)

	3-Day CAR	5-Day CAR	7-Day CAR
The entire sample	.00111 (5.0896)***	.00206 (5.3368)***	.00219 (5.7986)***
The common law ADR sample ( <i>n</i> = 54)	.00138 (4.5246)***	.00238 (4.6647)***	.00253 (5.2819)***
The code law ADR sample ( <i>n</i> = 25)	.00052 (3.4575)***	.00136 (2.6957)**	.00146 (2.5042)**
Difference <sup>a</sup>	.00086 (1.8570)*	.00102 (1.2364)	.00106 (1.3116)

The 3-, 5-, and 7-day windows are measured using Days -2 to 0, +2, and +4, respectively. Earnings surprise is measured as change in annual EPS (this year's EPS - last year's EPS) deflated by the beginning of period price. CAR is computed by cumulating daily size-adjusted excess return available on CRSP. *T* statistics are in parenthesis.

<sup>a</sup> This refers to the difference in the means between the large firm and the small firm and the small firm sample (large minus small).

\* Significant at 10% level using two-tailed test.

\*\* Significant at 5% level using two-tailed test.

\*\*\* Significant at 1% level using two-tailed test.



additional test to alleviate the concern that the main results reported in this study are due to the fact that the common law sample contained more good news firms than the code law sample. To achieve this objective, I take a square of returns and repeat the analysis. This procedure can be viewed as an alternative means to control for the direction of news because it eliminates the effects of the direction of news and measures only the magnitude of the market's reaction.

These results are reported in Table 7. The results are qualitatively similar to the earlier results and show that the market's reaction to the common law earnings announcements is larger than to that of the code law announcements even when the direction of news effects is minimized by using the squared return metric. Over 3 days around the announcements, the difference in the reactions is statistically significant ( $P < .1$ ).

## 6. Conclusion

This study provides evidence that the effects of international institutional factors spillover to ADR programs. Extending BKR's (2000) finding that the earnings of enterprises in the common law countries are of higher quality (more conservative and timely) than those of firms in the code law countries, I find that the market reacts significantly to the earnings announcements of common law ADR programs but not to those of code law ADR programs. This finding suggests that the usefulness of U.S. GAAP disclosure made by cross-listed firms is systematically affected by the institutional factors of the home country economy and that the current reporting requirements for the cross-listed firms fail to produce comparable accounting figures.

In closing, this study has some limitations. For instance, I did not control for the effects of local earnings announcements. This is a concern if the market has already reacted to the local earnings that had been announced prior to U.S. GAAP earnings, or if the market's reaction was due to the local earnings that were released simultaneously with the U.S. GAAP earnings rather than the U.S. GAAP earnings themselves. The first issue is unlikely to be a serious concern in light of the finding of Amir et al. (1993) that the two earnings are usually known simultaneously to the U.S. investors.<sup>12</sup> However, the degree to which the second issue affects my inference is hard to determine at this point.

Second, future research may extend this study and investigate factors that may lead to cross-sectional differences in the information content of earnings reports. For example, given that insider trade laws are likely to be weaker in the code law countries, news may already have been impounded into prices when their earnings are announced. In this regard, the degree of preemption (and the information content thereof) of earnings when they are released to the market may differ across the two samples.

<sup>12</sup> In their sample, these two earnings were published simultaneously in the *Wall Street Journal* and *Financial Times* in over 80% of the cases. Thus, for instance, assuming these dates as U.S. earnings announcements dates may be more descriptively valid for British firms than Japanese firms.

Yet another potential limitation of this study is external validity. Since Compustat collects and reports only the earnings figures of non-U.S. firms cross listed in the United States released through the newswires, my sample may not be representative of all ADRs currently trading in the United States.<sup>13</sup>

Finally, this study does not explain why the spillover takes place. As pointed out by Pownall and Schipper (1999), the evidence presented in this study does not enable us to distinguish whether the spillover is due to the demand effect, i.e., functional fixation of investors on the properties of local earnings associated with the legal regime, or to the supply effect, i.e., the economic conditions of firms operating in different environments are fundamentally “un-translatable” (Baumol & Malkiel, 1993). I leave this question for future research.

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<sup>13</sup> As of October 2001, for instance, the Bank of New York website lists 144 Australian, 219 British, 67 French, 57 German, and 162 Japanese ADRs.

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## The quality of Neuer Markt quarterly reports—an empirical investigation<sup>☆</sup>

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### Abstract

When compared with its prior performance, the year 2001 is not one of the best years for the Neuer Markt. The Neuer Markt's reputation has been marred by the practice of several companies on the exchange that have published misleading information in the form of incomplete annual and quarterly data. In this study, we examine the quality of Neuer Markt quarterly reports by concentrating on the disclosure level of 47 Neuer Markt companies' reports for the third quarter of 1999, 2000, and 2001. To enable making comparisons, we have established four disclosure indexes that measure each report's compliance with the Neuer Markt Rules and Regulations (NM Rules and Regulations) as well as with International Accounting Standards (IAS) and U.S. Generally Accepted Accounting Principles (U.S. GAAP) interim reporting standards. We then attempt to find typical attributes of Neuer Markt enterprises that provide high or low level of disclosure accounting information in their quarterly reports. The results demonstrate that the level of disclosure has increased over time, partly in response to additional enforcement. In this regard, the quarterly reports standardization project of Deutsche Boerse is an important landmark in satisfying investors' information needs.

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**Keywords:** Deutsche Boerse; Neuer Markt Rules and Regulations; International Accounting Standards; U.S. Generally Accepted Accounting Principles

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## 1. Introduction

Despite the recent market turndown, Germany's Neuer Markt, launched in March 1997, was considered to be the most successful stock market for growth companies in Europe in terms of both market capitalization and number of listings (Deutsche Börse, 2001a). This success can primarily be accounted for by its substantially stricter disclosure and listing requirements compared with other German market segments.<sup>1</sup> However, even if the Neuer Markt already boasts some of the tightest regulations in Europe, the general sell-off in technology and Internet stocks, a string of profit warnings, insider-dealing investigations, and insolvencies have shaken investors' confidence and prices have fallen by more than 90% from its peak reached in March 2000 to its all-time low in 2002 (Wall Street Journal Europe, 2000). This sharp setback in stock prices was a shock not only to many inexperienced retail investors who have for the first time realized a massive loss exposure (Benoit, 2001) but also to institutional investors who seem to be surprised by the free fall of prices.

In troubled financial markets, people are eager to seek out plausible explanations, and in some cases, people even find scapegoats. One viable starting point for this quest is questioning what type of information was available for investors and whether or not a better quantity or quality of information could have enhanced investors' decisions.

Quarterly reports are important sources of information, and companies listed on Neuer Markt are required to publish such reports and to prepare their accounts in accordance with either the International Accounting Standards (IAS) or the U.S. Generally Accepted Accounting Principles (U.S. GAAP) [7.1 Neuer Markt Rules and Regulations (NM Rules and Regulations)]. However, quarterly reports of several Neuer Markt companies were criticized as failing to meet investors' information needs (Maier & Herr, 2000). Important information was either missing or of poor quality. One major criticism is that, even if the rules are heavily influenced by regulation of Nasdaq and the U.S. Securities Exchange Commission (SEC), they lack a comparable enforcement mechanism. In fact, the Neuer Markt listing requirements are set in a rulebook that clearly spells out requirements for the issuer.<sup>2</sup> Deutsche Boerse acts as both the standard setter and the enforcement institution at the same time, and there is no government-based supervisor responsible for assuring the quality of quarterly reports. Moreover, Glaum and Street (2002) show that there was considerable noncompliance with IAS and U.S. GAAP disclosure rules in the year 2000 financial statements of 100 Neuer Markt companies.

<sup>1</sup> See Financial Times (2001). The NM Rules and Regulations can be downloaded at <http://www.deutsche-boerse.com/nm>. For the analysis, we take the NM Rules and Regulations as of May 21, 2001.

<sup>2</sup> The shares are admitted under public law to the Second Segment (Geregelter Markt) with relatively low publication requirements like half-year summaries. Additionally, for the admission under private law to the trading segment "Neuer Markt," the rules and regulations must be accepted by the issuer. The Executive Board of the Deutsche Boerse can reject the application if the admission criteria of registration conditions are not fulfilled. Moreover, it can terminate the admissions to the Neuer Markt if the issuer does not adhere to the requirements connected with the admission. See Deutsche Boerse Information Folder, Section 2.1, version January 1, 2001. In connection with the new delisting rule, the Frankfurt court stated that the NM Rules and Regulations could be interpreted as general trade conditions, but they showed some particularities. See LG Frankfurt, decision from August 15, 2001—3-13 O 110/01 (nrkr).



In this study, we concentrate on the disclosure level of quarterly reports of 47 Neuer Markt companies for the third quarter of 1999, 2000, and 2001. We begin by briefly describing in Section 2 the interim reporting standards of the Neuer Markt, IAS, and U.S. GAAP. Section 3 discusses certain approaches that measure the quality of interim reports by disclosure levels. We then compare disclosure indexes that measure the report's compliance with the NM Rules and Regulations as well as with IAS and U.S. GAAP interim reporting standards. Next, we try to discover typical attributes of Neuer Markt companies that provide high or low level accounting information in their quarterly reports by investigating the correlations between the disclosure level and certain criteria like market capitalization and the time of existence in the Neuer Markt.

Section 4 demonstrates that the level of disclosure has increased over time. An additional enforcement mechanism added in 2000 has especially improved reporting quality. In this regard, the quarterly reports standardization project of Deutsche Börse (2001b) is an important landmark in satisfying investors' information needs. Section 5 concludes the paper.

## 2. Interim reporting standards

### 2.1. NM Rules and Regulations

Four years after its launch in March 1997, more than 340 companies were listed on Neuer Markt, 56 of which were headquartered outside Germany.<sup>3</sup> The NM Rules and Regulations require the publication of quarterly reports that follow either IAS or U.S. GAAP (d'Arcy & Leuz, 2000). In both cases, Neuer Markt-listed companies are required to publish quarterly reports in both German and English. These reports must contain financial statements and a notes section, the most important components of which are income statement, cash flow statement, and net income or loss per share.

For each figure, the previous year's comparative figure for the corresponding period shall be given (7.1.2 NM Rules and Regulations). The following notes are to be made in the explanatory section, each with comparable figures from the previous year (7.1.3 NM Rules and Regulations):

1. breakdown of revenues,
2. remarks to the order situation (order backlog),
3. presentation of the development of costs and prices,
4. R&D activities,
5. specification for the investment activities,
6. presentation of personnel changes in the company's Board of Management Directors or supervisory bodies,
7. explanations of shares held by the company and subscription rights of officers and employees,

<sup>3</sup> See Deutsche Börse (2001a). See also Leuz (2003, pp. 450–452) for a brief description of the Neuer Markt.



8. explanation regarding distribution of interim dividends,<sup>4</sup> and
9. number of employees.

If a Neuer Markt-listed company published its preceding annual report on a consolidated basis, then the quarterly report consisting of the financial statements and the explanatory notes are to be prepared on a consolidated basis too (7.1.4 NM Rules and Regulations).

In Article 7.1.7 of the NM Rules and Regulations, it is stated that the quarterly report has to be transmitted immediately following its completion and within at least 2 months of the end of the relevant reporting period. In this case, we analyze the Neuer Markt-listed companies that have electronically submitted the quarterly report within the prescribed period.<sup>5</sup>

Furthermore, at the request of the company, Deutsche Boerse may, under some circumstances, permit a reconciliation of national accounting principles to IAS or U.S. GAAP (7.3.2 NM Rules and Regulations). Deutsche Boerse comments that this reconciliation statement must in its material aspects have the format of the U.S. GAAP reconciliation statement. From the viewpoint of Deutsche Boerse, this reconciliation statement can be regarded to be the minimum reporting to be presented.

## *2.2. Interim financial reporting according to IAS 34*

IAS 34 sets detailed rules for interim reporting in order to make sure that investors are informed of the latest financial news of a company. Quarterly reports should preferably focus on new activities, events, and circumstances that have occurred since the publication of the latest annual financial statements. Thus, IAS 34 has softened the presentation of quarterly reports compared with annual financial statements (Epstein & Mirza, 1999, p. 651). A quarterly report in accordance with IAS 34 must contain financial statements and explanatory notes. The standard mandates that the following financial statements components be presented either in full (IAS 34.5) or in a condensed format,<sup>6</sup> each with comparable figures for the previous year (IAS 34.20): balance sheet, income statement, EPS (basic/diluted) (IAS 34.11), cash flow statement, and statement of changes in stockholder's equity.<sup>7</sup>

<sup>4</sup> In some countries, it is allowed to distribute interim dividends, whereas this is forbidden to German public companies. See Section 59 AktG. For this reason, only non-German companies were analyzed whether this specification was given or not.

<sup>5</sup> The publication period postulated in the NM Rules and Regulations does overrule neither the IAS recommended 60-day period [IAS 34.1 (b)] nor the U.S. GAAP required 45-day period (Form 10-Q, General Instructions A.1.) because it is to be regarded as special rule of Neuer Markt-listed companies.

<sup>6</sup> If a company presents its quarterly report in a "condensed format," then IAS 34.10 requires that, at a minimum, those "condensed financial statements" should include each of the headings and the subtotals that were included in the company's most recent annual financial statement.

<sup>7</sup> According to IAS 34.8c, the companies can choose between the presentation of a statement of changes in stockholders' equity and a statement of comprehensive income. None of the Neuer Markt-listed companies chose the possibility of showing a comprehensive income statement. Thus, we only examine these companies whether they present the statement of changes in stockholders' equity or not.

The explanatory notes that accompany financial statements state the minimum disclosures to be made, as outlined below (IAS 34.16):

1. a statement that the same accounting policies and methods are applied in the quarterly report compared with the most recent annual report,
2. comments about seasonality or cyclicity of interim operations,
3. nature and magnitude of significant items affecting interim results that are unusual because of nature, size, or incidence,
4. nature and quantum of changes in estimates, if affecting the actual report,
5. issuance, repurchases, and repayments of debt and equity securities,
6. dividends paid,
7. revenue and operating results for business segments or geographical segments, which represent the company's primary mode of segment reporting: If a company is obliged to prepare a "complete set of financial statements," then it shall follow IAS 14 (Price Waterhouse Coopers (PWC), 1999, p. 5).
8. significant events occurring subsequent to the end of the reporting period,
9. changes in the composition of companies to be consolidated, and
10. changes in contingent liabilities or assets.

IAS 34.14 requires consolidated financial statements if the preceding annual financial statements were presented on a consolidated basis.

### *2.3. Interim financial reporting according to U.S. GAAP*

The basic objective of the U.S. GAAP interim reporting is to provide investors and others with timely information as to the progress of the enterprise. The timeliness of presentation may be partially offset by a modification in detail in the information provided (APB 28.9 and 30) (Epstein & Mirza, 1999, p. 757). As a result, using APB 28 as a guideline allows a company to present quarterly reports either in a "summarized form" or as a "complete set of financial statements." APB 28 represents the general guideline among other SFAS, FASB Interpretations, and for certain practical aspects the regulation S-X (Delaney, Epstein, Adler, & Foran, 2000, p. 757).

If a Neuer Markt company has decided to prepare its quarterly report according to U.S. GAAP, it would have to show the following financial statements components, each with comparable preceding year's figures (APB 28.2 and 33): balance sheet, income statement,<sup>8</sup> cash flow statement, segment report (for condensed form overview only) (APB 28.30), and statement of changes in stockholders' equity.<sup>9</sup>

<sup>8</sup> APB 28 requires for the income statement the presentation of significant items only. To close this interpretative gap, the NM Rules and Regulations requires explicitly an entire income statement. This was also clarified by the Deutsche Börse by the market circular on Structured Quarterly Reports.

<sup>9</sup> For 1999 and 2000, none of the Neuer Markt-listed companies chose the possibility of showing a comprehensive income statement. Thus, we only examine these companies whether they present the statement of changes in stockholders' equity or not.



The type and scope of the complete set is determined by the most recent annual report.<sup>10</sup> For both formats, the following disclosure should be reported as a minimum (APB 28.30) (Kieso & Weygandt, 2001, p. 1397):

1. sales or gross revenues,
2. provisions for income taxes,
3. extraordinary items,
4. cumulative effect of a change in accounting principles or practices,
5. net income,
6. EPS (basic),
7. EPS (diluted),
8. seasonal revenue, costs, or expenses,
9. significant changes in estimates or provisions for income taxes,
10. disposal of a segment of a business and extraordinary, unusual, or infrequently occurring items,
11. contingent items,
12. changes in accounting principles or estimates, and
13. significant changes in financial positions.

Quarterly reports according to U.S. GAAP shall be based on the same accounting policies and practices used by the company in the preparation of its most recent annual report. Three companies of our sample are dual listed on the Neuer Markt as well as on Nasdaq. They use the Form 10-Q instead of a quarterly report, which was accepted by Deutsche Boerse.

### 3. Methodology and research data

#### 3.1. Methodology: developing disclosure indexes

Corporate finance theory predicts that companies endogenously optimize disclosure policy in order to maximize firm value. This choice involves trading off the reduction in the information asymmetry component of the cost of capital that results from increased disclosure quality (see Leuz & Verrecchia, 2000; Verrecchia, 1983; for an empirical literature overview, see Core, 2001; Healy & Palepu, 2001). For firms with low growth opportunities, a minimum disclosure may be of sufficiently high quality because those firms have no need for external finance and therefore are not influenced by the cost of new equity capital.<sup>11</sup> For firms with high growth opportunities—like Neuer Markt companies—information asymmetry is high and some reduction through voluntary disclosure would seem optimal (Core, 2001, pp. 2–3).

<sup>10</sup> This is the interpretation of KPMG regarding Neuer Markt-listed companies preparing the quarterly reports under U.S. GAAP. See also KPMG (1999, p. 181).

<sup>11</sup> However, there is some empirical evidence that disclosure quality also influences the cost of debt (Sengupta, 1998).



Accordingly, a number of empirical studies suggest a link between cost of equity capital and disclosure (Botosan & Plumlee, 2000, p. 3).

To accept this connection, we first have to define the disclosure level as an indicator for reporting quality. Recent empirical disclosure literature suggests that mandatory disclosure is enforced and therefore does not have to be included in a disclosure quality index. This assumption does not hold for the Neuer Markt because one major criticism concentrates on the noncompliance of some issuers with existing rules. Furthermore, the companies have to report in accordance with the NM Rules and Regulations as well as those of either IAS or U.S. GAAP. Accordingly, we have to consider different systems. We find a related research question in the comparison of national accounting systems by disclosure levels.

In the 1970s, Barrett (1975, 1976, 1977) developed an “index of disclosure,” which measured the complexity and adequacy of accounting information for certain national accounting systems by investigating the disclosure of several annual reports. The presence of 17 “items of information” in each report determines the index. As a result, companies, especially American and British ones, show high values, whereas the continental European firms indicate relatively low degrees with France at the bottom.<sup>12</sup> Also, in the 1970s, Choi (1973a, 1973b, 1974) published three studies about the relation of external environmental factors to the capital market influence on accounting and the quality of financial reporting practices. Similar to Barrett’s method, Choi measures the degree by a “level of disclosure” that is based on 36 “items of information.” Belkaoui (1983) uses a partly related concept that evaluates national accounting systems by a “reporting and disclosure adequacy index” based on the Price Waterhouse (1979) database on accounting practices. The index is calculated by summing the ordinal categories of all items for each country, which includes disclosure as well as measurement practices. The enclosed test of significance does not prove a strong relation between this index and several environmental factors. Furthermore, Belkaoui and Maksy (1985) test the relation between the “reporting and disclosure adequacy index” and the concept of the “welfare of the common man.” As in the earlier study, they did not verify the existence of a significant dependence. Nowadays, several databases of annual reports provide information on whether or not several disclosure items are included.<sup>13</sup> The most recent study from Glaum and Street (2002) on the compliance with the disclosure requirements of Neuer Markt companies derived the dependent variable from a checklist that coded disclosure items as disclosed, not disclosed, or not applicable. Glaum and Street calculated a disclosure compliance index for each company by dividing the total number of required disclosures by the number of applicable disclosures.

The above-noted studies define the disclosure level by adding up the number of disclosure items. Similarly, we establish disclosure levels by defining items of information that should

<sup>12</sup> In his analysis from 1975, Barrett makes use of the reports of the 15 biggest enterprises for each country only. In the later studies from 1976 and 1977, the database considers 103 reports from the financial years 1963–1972.

<sup>13</sup> See, for example, the AIMR reports (<http://www.aimr.org>).

be included in the interim report following the related standards as described in Section 2. For each level, we compute 1999, 2000, and 2001 numbers to investigate developments.

- a. The first index, FINANCIALS, is noted by one if all parts of an interim report are present, namely the income statement, the balance sheet, the cash flow statement, and the earnings per share figure, each with comparable preceding year's figures. This measure is independent from type of accounting standards employed.<sup>14</sup>
- b. The second index, NM, indicates compliance with explicit disclosure regulations of the Neuer Markt as described in Section 2.1.
- c. The third index, IAS, scales the compliance with IAS 34 disclosure rules for companies that follow IAS.
- d. The fourth index, US, shows the conformity with U.S. GAAP interim reporting standards as described in Section 2.3.
- e. Finally, we establish the index ALL, which describes the overall disclosure level for all companies under review on a percent basis. The indexes FINANCIALS, NM, and either IAS or US are accumulated while eliminating duplicate information, e.g., earnings per share figures that are part of FINANCIALS and US.

### 3.2. Limitations

We are aware of the limitations of this research approach. The indexes are defined as simple sums. Because all items of information are equally weighted, important items may be swamped by trivial ones. Consistent with other approaches, we measure how well the reports conform to the related standards. This method may not provide a strong indicator of the quality of accounting numbers that are not public information. Although we view disclosure quality in a narrow sense, the results offer an opportunity to gain new insights into the level of information that companies publish on a quarterly basis. Thus, these results cannot be interpreted as a complete measure of compliance with interim reporting standards. Although Glaum and Street (2002) differentiate between “not applicable” and “not disclosed” data and calculate an overall compliance index, they also use publicly available information and are therefore not able to differentiate between missed disclosure and not satisfying certain criteria. Thus, a disclosure index can be interpreted only in a relative sense, and we have established a 3-year comparison to analyze possible developments.

### 3.3. Research data

We use only a sample of the 174 companies listed on the Neuer Markt at the end of October 1999 that were required to submit quarterly reports.<sup>15</sup> Only companies that published

<sup>14</sup> We do not include the statement of changes in stockholders' equity in this figure because it is not required in all cases. However, FINANCIALS do not provide us the full information on the compliance regarding the components of an interim report for companies that tend to follow IAS.

<sup>15</sup> All Neuer Markt-listed companies that receive listing authorization during the accounting period are obliged to provide a quarterly report. This is implicitly stated in 7 NM Rules and Regulations.



Table 1

Accounting standards used and usage of reconciliation

		Full	Reconciliation	Total
1999	U.S. GAAP	23	5	28
	IAS	13	6	19
	Total	36	11	47
2000	U.S. GAAP	26	1	27
	IAS	19	1	20
	Total	45	2	47
2001	U.S. GAAP	25	1	26
	IAS	21	0	21
	Total	46	1	47

the six monthly and the third quarter reports for 1999 were selected for the initial sample. We deleted four firms that we could not identify the accounting regime used, and based on internal Deutsche Börse advice, market capitalization was either less than 80 million or greater than 3 billion euros (Deutsche Börse, 1999).

We further reduce this sample for 2000 by two companies due to insolvency and merger. In 2001, five more companies of the original sample were delisted. We use the sample of 47 Neuer Markt companies to compare quarterly reports of the third quarter of 1999 with those of the third quarter of 2000 and 2001.

The accounting standards adopted and the extent of using reconciliation (instead of a full set of financial statements) for the sample of 47 companies is presented in Table 1.

## 4. Results

### 4.1. Disclosure levels

Fig. 1 shows the frequencies for the FINANCIALS index for 1999, 2000, and 2001. In 1999, only 20 companies (43%) show all elements of an interim report with an average of 6.62 out of a maximum of 8 elements shown. Nearly three-quarters of the firms fulfill this

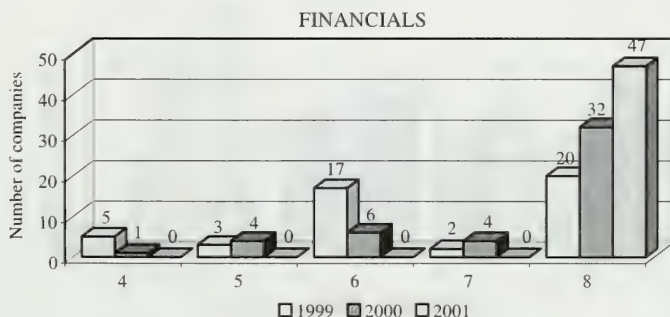


Fig. 1. Frequencies of FINANCIALS.



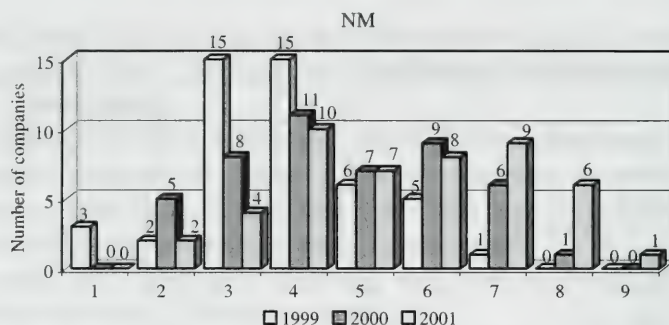


Fig. 2. Frequencies of NM.

requirement in 2000, with an average of 7.32. The S.D. decreases from 1.38 to 1.12. In 2001, all companies show the basic elements of an interim report based on the formats required by Deutsche Börse. It appears that standardization of quarterly reports has succeeded in enforcing certain levels of disclosure. In 1999 and 2000, the comparable figures in the preceding year are missing in some cases. One company does not provide a cash flow statement in 2000 (three in 1999). In 6 cases, the EPS figure is missing in 2000 compared with 10 in 1999. Six companies do not present a balance sheet in 2000 (11 in 1999). This is likely to be due to the fact that the 1999 version of the NM Rules and Regulations did not explicitly require a balance sheet although it is required by both IAS and U.S. GAAP.

Fig. 2 shows the frequencies that indicate compliance with the NM Rules and Regulations. Some rules are only applicable under certain conditions, e.g., disclosure about changes in the boards. It is therefore not surprising that only one company reaches the maximum sum of nine (in 2001). Relevant information is often missing: eight companies do not show a breakdown of their revenues in 1999 (only one in 2000); three of the companies that publish their quarterly reports on Form 10-Q ignored the Neuer Markt disclosure requirements. However, the index has increased by about 21% from 1999 and 2000 and by 19% from 2000 to 2001. On average, sample companies show 3.81 items of information (median=4) in 1999, 4.62 (median=4) in 2000, and 5.51 (median=6) in 2001. This change was accompanied by a

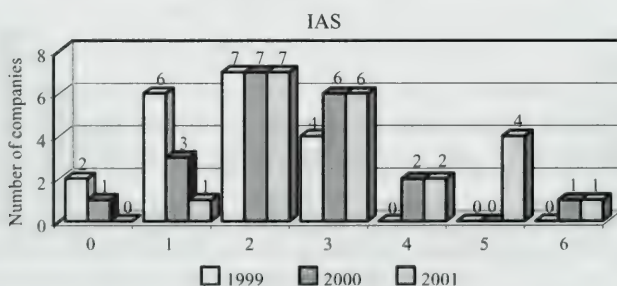


Fig. 3. Frequencies of IAS.

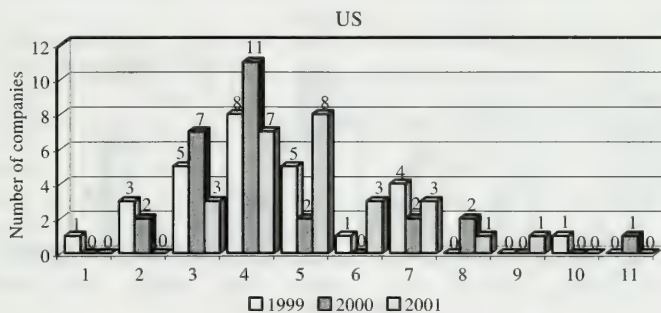


Fig. 4. Frequencies of US.

more moderate increase in the S.D. from 1.35 in 1999 to 1.78 in 2001. There is nevertheless important information that remain undisclosed, e.g., major investments or R&D activities. Forty-six companies provided disclosure on their own shares in 2001 while there were only two companies in 2000, whereas no company disclosed own share information in 1999.

The same is true with the IAS index (Fig. 3). Two companies (of 19) in 1999 and one (of 20) in 2000 do not provide even one item of information following IAS 34 requirements. Segment information was not disclosed for more than the 60% of the companies under review, although this effect may be traced back to IAS 14, which did not require segment information in all cases. However, the 18 companies that had provided segment information in 2001 represents a significant increase when compared with 3 in 1999 and 8 in 2000. The mean index increases from 1.68 in 1999 to 2.45 (with an increasing S.D. from 0.95 to 1.32). In 2001, the mean reaches 3.19, an increase of 30%, while the median increases from 2 to 3. The S.D. remains almost unchanged at 1.36.

For the US index (Fig. 4), not all of the 13 items are disclosed by all companies even if they report according to the detailed SEC regulations Form 10-Q as shown by the high S.D. of 2.06 in 2000 and 1.95 in 1999, which declines to 1.53 in 2001. The increase of the index mean from 4.39 in 1999 (4.26 in 2000) to 5.12 in 2001 is not as high as the increase for other

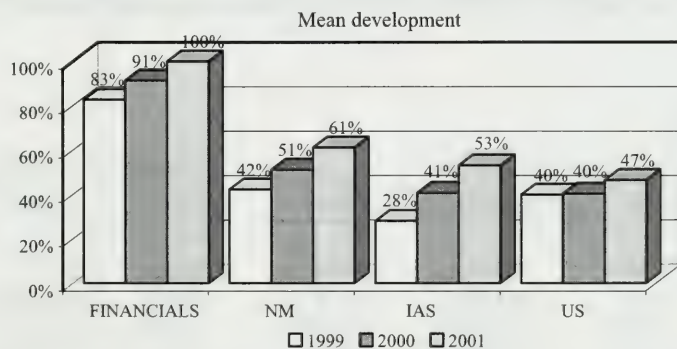


Fig. 5. Mean development.

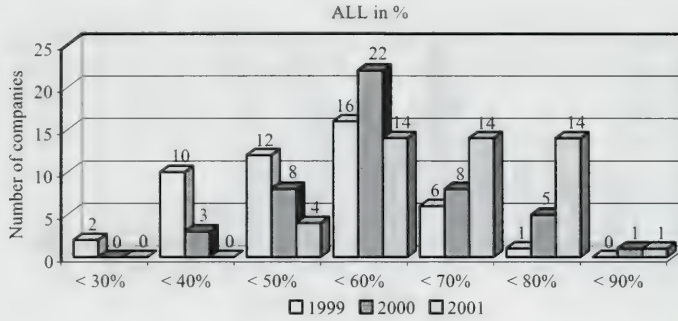


Fig. 6. ALL index: histogram of frequencies.

indexes. Essential information, such as basic earnings per share figures, are not given by eight firms for 2000 (six for 1999), whereas all companies provide earnings per share information in 2001; despite the fact that almost all companies may have a dilutive effect on the earnings per share figure from their contribution plans, dilutive earnings per share numbers are presented by 19 companies for 2001, 8 for 2000, and 9 for 1999.

In summary, except for the basic parts in 2001, the disclosure indexes are not as high as would be expected. However, the relative disclosure levels have been increasing (see Fig. 5) over the 3 years studied. The IAS disclosure level grows at over 30% per year, whereas the US disclosure level is more constant. These conclusions are confirmed by analyzing the ALL index for 1999, 2000, and 2001 (see Fig. 6). The overall disclosure level for all companies increased up from 48.81% to 56.13% and 63.42%, an increase of 15% in 1 year, while the S.D. remained almost constant. The second year shows an increase of 13% with a lower S.D. of 0.83.

#### 4.2. Correlations

We looked for correlated patterns to characterize how a company with a high or low disclosure level can be characterized. The first important attribute may be the accounting principles used. U.S. GAAP is enforced for three companies in this study because they are

Table 2  
ALL IAS and ALL US

	ALL IAS 1999	ALL US 1999	ALL IAS 2000	ALL US 2000	ALL IAS 2001	ALL US 2001
<i>n</i>	19	28	20	27	21	26
Mean (%)	46.30	50.51	53.26	58.27	63.67	63.22
Median (%)	47.22	48.98	52.78	58.06	66.67	62.22
S.D.	0.0996	0.1057	0.1017	0.1051	0.0912	0.0798
Minimum (%)	24.07	32.04	31.94	35.74	48.15	47.78
Maximum (%)	62.96	71.48	70.37	85.93	77.78	82.96



Table 3

Influence of full format versus reconciliation

		<i>n</i>	Mean (%)	Median (%)	Minimum (%)	Maximum (%)	S.D.
1999	Full accounts	36	49.94	50.56	24	71	0.10644
	Reconciliation	11	45.10	42.78	29	59	0.09154
2000	Full accounts	45	56.53	55.56	32	86	0.10586
	Reconciliation	2	47.31	47.31	44	51	0.05369
2001	Full accounts	46	63.53	62.22	48	83	0.08470
	Reconciliation	1	58.15	n.a.	58	58	n.a.

listed on a US exchange. By comparing the index ALL in the disclosure level for companies that follow IAS and those that follow U.S. GAAP, we find the disclosure level of these U.S. GAAP companies to be higher. However, in 2001, IAS disclosure index surpasses that of U.S. GAAP. Also, the minimum levels shown under U.S. GAAP are also at relatively low level of 48% for 2001 and 36% for 2000 (32% in 1999) (Table 2).

The second attribute characterizes companies as providing a full set of financial statements or only reconciliation. It is plausible that the former, whether following IAS or U.S. GAAP, comply more with the related disclosure standards. Table 3 shows that for 1999 and 2000 the disclosure level of companies with full sets of financial statements is higher than that of companies providing only reconciliation. However, the number of firms providing reconciliation decreased from 11 in 1999 to only 1 in 2001.

Moreover, the use of condensed formats versus the full report may be interpreted as an indicator of a lower disclosure level. It seems plausible that presenting full format provides more disclosure. Eighteen companies opted for a condensed format in 1999, which was reduced to 10 enterprises in 2000 and to 3 in 2001 when the standardization project of the Deutsche Börse requires a certain format for financial statements (Table 4).

In addition, companies that provide timely reports may present a relatively high disclosure level in order to lower cost of capital. According to the Neuer Markt Rules and Regulation, listed companies are required to electronically transfer the quarterly report to Deutsche Börse without delay after preparation but not more than 2 months after the end of the reporting period. Fig. 7 illustrates that most of the companies fulfill this requirement. In both 2000 and

Table 4

Influence of full or condensed formats

		<i>n</i>	Mean (%)	Median (%)	Minimum (%)	Maximum (%)	S.D.
1999	Condensed	18	48.00	48.52	24	71	0.10565
	Full	29	49.31	47.78	29	69	0.10495
2000	Condensed	10	53.07	51.25	36	76	0.11248
	Full	37	56.97	55.56	32	86	0.10360
2001	Condensed	3	57.65	58.15	56	59	0.01901
	Full	44	63.81	62.22	48	83	0.08549

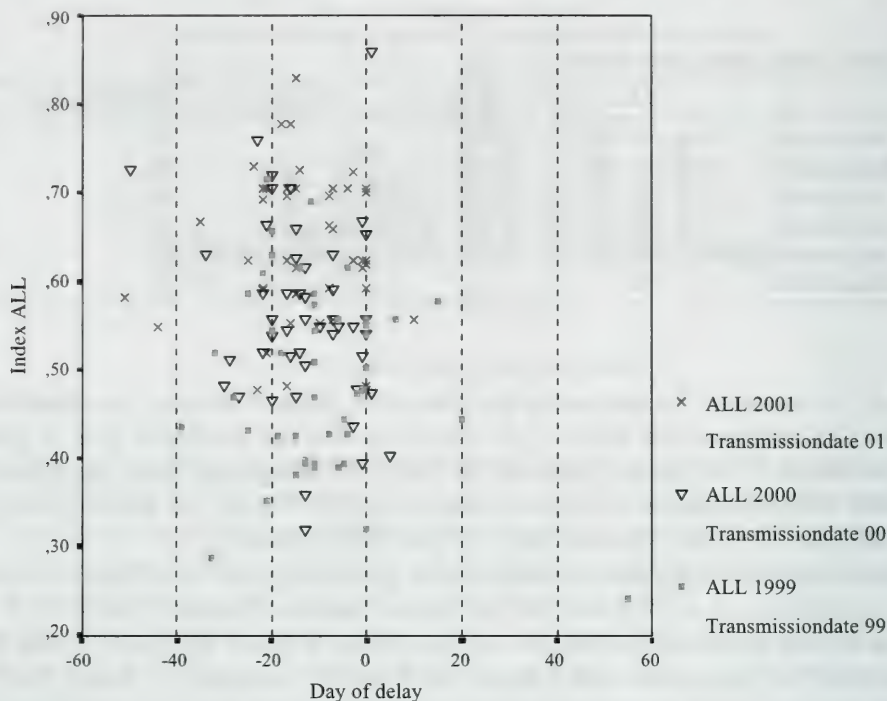


Fig. 7. Influence of days delay for 1999, 2000, and 2001.

2001, companies provided quarterly financial data, on average, 13 days earlier than required (median = 15 days) compared with 11 days in 1999 (see Table 5). In 2001, only one company transferred its report with a delay of 10 days (three in 2000 and four in 1999). The longest delay was 55 days in 1999. The results, however, do not reveal connection between timeliness and disclosure level.

We also examine whether larger companies are more likely to acquire professional accounting staff and enhance disclosure. This should in turn enhance the quality of quarterly reports. Fig. 8 shows the correlation between the disclosure level ALL for the years 2001,

Table 5  
Timeliness of reports

	1999	2000	2001
Mean	− 10.13	− 13.26	− 12.72
Median	− 11.00	− 13.00	− 15.00
S.D.	15.06	10.80	12.03
Minimum	− 39	− 50	− 51
Maximum	55	5	10

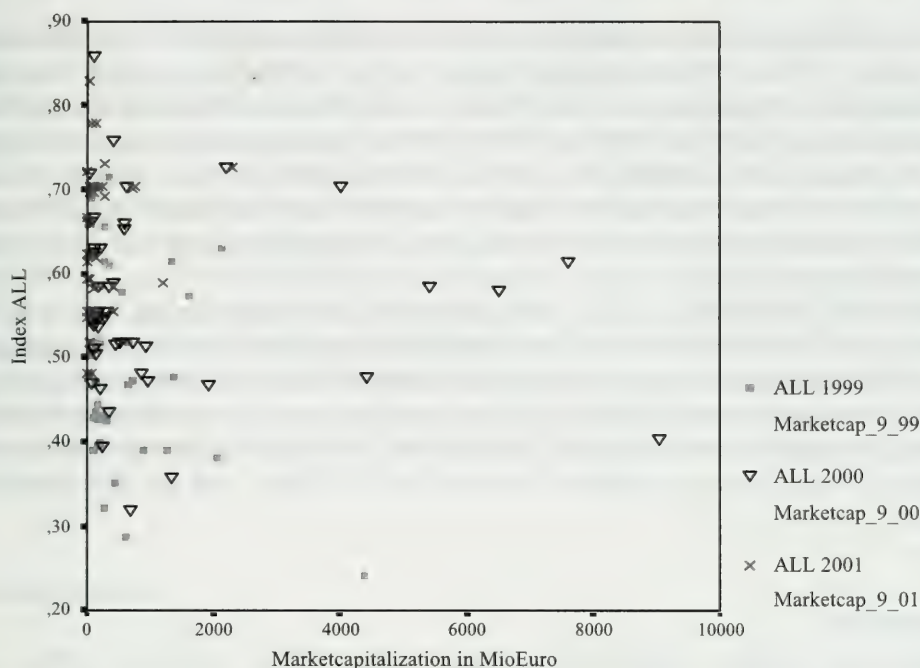


Fig. 8. Correlation between disclosure levels ALL 1999, 2000, and 2001 and market capitalization 1999, 2000, and 2001.

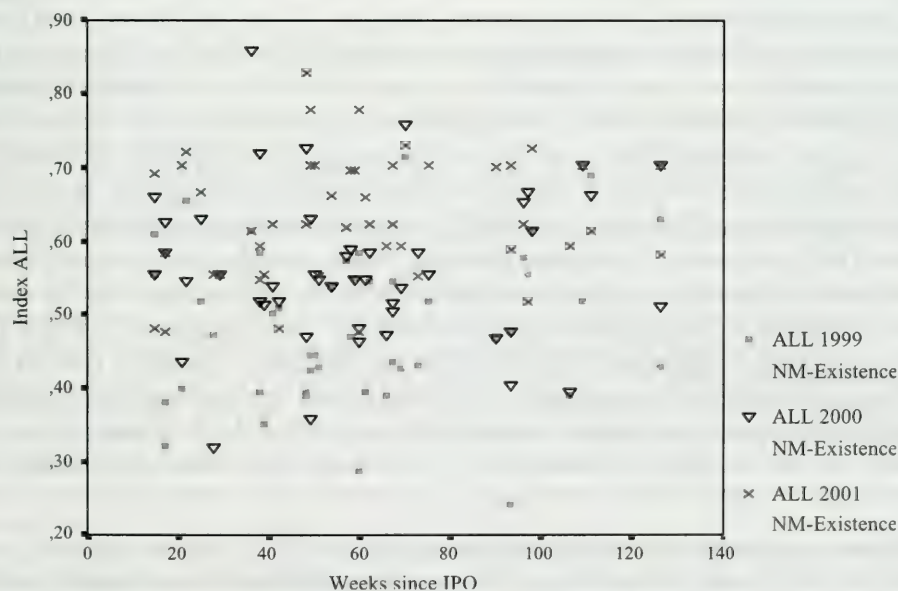


Fig. 9. Correlation between index ALL and the time period since listing.



2001, and 1999 and market capitalization for 2001 (2000 and 1999).<sup>16</sup> It is evident that a large number of Neuer Markt companies appear to have neither a particularly high market capitalization nor a high disclosure level. Pearson's correlation coefficient is not significantly different from zero (.261 for 1999 and .085 in 2000). The situation has changed slightly in 2001: the weak positive correlation of .180 is consistent with previous research (Glaum & Street, 2002). It is also noted that Street and Bryant (2000) and Street and Gray (2001) find no significant association between firm size and level of compliance with IAS or U.S. GAAP required disclosure.

Another area for analysis is the possible correlation between disclosure ALL indexes for the years 2001, 2000, and 1999 and the time period since admission to the exchange. We assume that the longer a company is listed on the Neuer Markt, the more reporting it would have and the higher degree of quality in their quarterly reports. Fig. 9 shows a positive trend (Pearson's correlation coefficients of .154 for 2001, .043 for 2000, and .109 for 1999), suggesting a weak positive correlation between the ALL index and the time period since admission.

## 5. Conclusion

The results demonstrate that the level of disclosure has increased over time. The additional enforcement mechanism has improved quality; the quarterly reports standardization project of Deutsche Boerse was thus successful. However, our analysis shows that important information was not reported. For example, 75% of the companies present all required financial statements in their 9-month report for the year 2000. In 1999, 42% of the enterprises publish the full financial statements. This is in contrast with the Glaum and Street (2002) study in which the majority of sample companies present between 95% and 42% of the required items.

Basic information was timely reported in all cases for the 3 years studied. Although the sample companies provided profit information on a regular basis, we did not examine whether a higher disclosure level would have affected market participants differently.

While analyzing the results, we should be aware that according to the stock exchange admission regulation in Germany (par. 53–62), companies must have half-year summaries only. Most DAX companies, the German blue chip index, publish quarterly reports, but many listed companies do not. Hence, the Neuer Markt disclosure requirements may be seen as an important landmark in the information environment of listed companies.<sup>17</sup> From 1999 to 2001, there has been a significant improvement in the fulfillment of specific rules of IAS 34, although the disclosure level according to U.S. GAAP does not show such an improvement. Despite this difference, the choice between IAS and U.S. GAAP appears to be of less importance for the overall disclosure level. The results also show that neither market

<sup>16</sup> The market capitalization was fixed by the end of September 1999, 2000, and 2001 (beginning of October 1999, 2000, and 2001) because the identification of the research date started with the beginning of October 1999.

<sup>17</sup> For example, the German index family (DAX, MDAX, and SMAX) requests quarterly reports inspired from the NM Rules and Regulations.

capitalization nor time period since admission to the Neuer Markt correlate with the disclosure level.

One major finding is the increased level of disclosure in quarterly reports. The reasons for this development are the continuous supervision of quarterly reports since the summer of 2000 and the introduction of standardized formats. Nevertheless, the lack of effective supervision for the German capital market continues to be a concern; there is no institution or mechanism that enforces compliance with accounting standards and pursues violations (d'Arcy, 2001). A recent debate has stressed the need for review of quarterly reports through a public or private governmental enforcement body. For example, the German Governmental Commission Corporate Governance (2001) and the European Union (2001) favor the requirement of a limited review of quarterly reports. However, the response of the German Government or the European Union will take time. While the Deutsche Boerse still considers additional steps, whether governmental enforcement should also be established still needs to be discussed.

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## A discussion of the paper “The Quality of Neuer Markt Quarterly Reports—An Empirical Investigation” by Anne d’Arcy and Sonja Grabensberger

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### 1. Contribution

The objective of the study by d’Arcy and Grabensberger (2003) is to examine whether over the period 1999–2001 there has been an increase in the information disclosed in the quarterly reports of firms listed on the Neuer Markt of the Deutsche Boerse. The implicit assumption of the study is that more disclosure is equivalent to higher quality disclosure, which may be a necessary but not a sufficient condition. In general, quarterly reports provide more timely but less reliable financial information than annual or semi-annual reports because quarterly accounting information has not been verified by independent auditors.

The quarterly information was compiled according to either IAS or the U.S. GAAP. Yet, the Deutsche Boerse, at some stage in the summer of 2000, decided to require that listed companies release quarterly information in a standardized format, acting in essence as a standard setter, because there were incidents of noncompliance with the GAAP selected by the listed firm.

The empirical findings of the study suggest that over time there has been an increase in the level of disclosure and this increase is more pronounced for firms that have adopted IAS. The findings of the study show that in applying IAS, European companies were undergoing a learning process. This is an important but rarely mentioned issue in Europe, where IAS will become mandatory for all listed companies of EU countries in 2005. In addition, the study underscores the importance of the enforcing mechanism in the uniform application of the IAS standards, another issue that has not been resolved in Europe.

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## **2. Methodological considerations**

The study pays particular attention to the construction of the disclosure index, the dependent variable of the study, and points out a number of limitations. A general limitation of this index is that it penalizes firms that do not disclose an item simply because they have nothing to disclose. A firm, for example, that has no business segments will not report any information about segments and the disclosure index measure will be lower than that of a firm that does have segments and reports the relevant information. Hence, the information disclosed by the former firm is not necessarily of lower quality than that of the latter.

The disclosure index also does not consider the value relevance of the different items, since it may include both items that are value relevant as well as those not relevant for stock market participants. Hence, the value relevance of the disclosure index remains an open question and an examination of the association of the index with the stock returns following the disclosure of quarterly information would have been an additional dimension needed to substantiate the study.

The study assumes that the primary benefit of increasing disclosure is a reduction in the information asymmetry component of the cost of capital. This argument was advanced by Leuz and Verrecchia (2000), who also tested it by using three surrogates for the information asymmetry component of the cost of capital. The three surrogates were the bid–ask spread, trading volume, and share-price volatility. Tests relying on these three measures would have provided evidence whether a decrease in the cost of capital occurs with increased disclosure. Alternatively, the authors could have measured directly the cost of capital by using a valuation model as in Botosan (1997) and used the measure from the valuation model to test whether increasing disclosure results in a reduction in the cost of capital. Either approach would measure the cost of capital with error but would be able to provide some support for the main assertion of this study.

A recent trend in empirical research has been to place emphasis on graphs. This study appears to rely on this methodology to draw inferences. The proponents of this view argue that “a picture is equivalent to a thousand words,” but in building theories and developing scientific disciplines, the researcher makes probabilistic statements as to whether he/she rejects or fails to reject hypotheses. The graphs do not provide the researcher with the opportunity to measure the confidence level he/she places on the findings.

## **3. Empirical findings**

The empirical findings of the study suggest that over time there has been an increase in the level of disclosure and this increase is more pronounced for firms that have adopted IAS and less so for firms that have adopted U.S. GAAP. The authors appear to suggest that this improvement is due primarily to the standardization project of the Deutsche Boerse and not to reasons such as firm size and “time period since listing,” which act as surrogates for the ability of a firm to provide high-quality information. The reports are also filed timely (i.e., within 2 months following the end of the reporting period), but this appears to be a requirement of the



Deutsche Boerse rather than a direct effect of the adoption of IAS or U.S. GAAP. Finally, firms that provide a full set of financial statements rather than a condensed version or reconciliation from national GAAP to IAS or U.S. GAAP have higher disclosure levels, although the number of firms using the condensed version and the reconciliation has drastically diminished over time. These comparisons between groups of firms are not based on statistical tests but only on observation of means and medians. Nonparametric statistics, which are appropriate for small samples, would have increased the internal validity of the findings.

Another important finding is that firms reporting under U.S. GAAP have higher levels of disclosure than firms reporting under IAS, especially for the first 2 years examined. This is an issue that the study could have pursued further by providing the profile of each group of firms on certain dimensions, such as size, debt-to-equity ratio, auditor employed, industry composition, systematic risk, etc. It appears that these two groups of firms self-select themselves and one would like to know the reasons that motivate companies to choose one set of accounting standards over another. The auditors usually play an important role in the selection of the appropriate GAAP because they know the objectives of their client and the information that must be disclosed, even in the instances where direct audit work is not performed, and make appropriate recommendations.

#### **4. The costs and benefits of increasing disclosure**

While the study places emphasis on one direct benefit of increasing disclosure, namely, the reduction in the information-asymmetry cost of capital, it remains silent on other benefits as well as costs of increasing disclosure. The studies by Bushee and Noe (2000) and Healy, Hutton, and Palepu (1999) show that institutional investors are attracted to firms with more forthcoming disclosure. Bushee and Noe also show that improvements in disclosure practices attract institutional investors that trade frequently and lead to significant increases in stock return volatility. High stock return volatility is potentially undesirable because it can increase the perceived riskiness of a firm and the cost of capital (Froot, Perold, & Stein, 1992). Thus, increasing disclosure could lead to higher cost of capital but the increase in the cost of capital arises from the behavior of institutional investors that trade frequently.

Additional costs for the firms in the study could arise from a possible loss of their competitive advantage. Firms that feel the threat of competition have strong incentives, especially in the absence of auditors or strong enforcement mechanisms, to avoid disclosing certain items.

Benefits could also arise for managers if their compensation package includes stock options, as increases in return volatility due to disclosure changes could lead to a higher value for the stock options. The work of Aboody and Kaznik (2001) indeed shows that managers make voluntary disclosure decisions to maximize the value of the stock option component of their compensation package.

Healy et al. (1999) show that increases in disclosure ratings are associated with increases in analyst coverage. The variable, analyst coverage, provides information on the demand side of disclosure, while the disclosure index is primarily on the supply side. Analyst coverage attracts



new investors, increases trading, and facilitates additional equity offerings. Hence, another benefit of higher disclosure is the ability to have easy access to capital markets. This benefit can be particularly important if the companies of the sample are young and fast growing.

## 5. Concluding remarks

The preceding discussion has focused on a number of issues and difficulties that any researcher could face while conducting empirical research in the area of disclosure. The main difficulty, however, remains in the absence of a theory of disclosure that could guide the researcher. These comments do not alter the main finding of the study (i.e., there is an increasing level of quarterly disclosure over the time period covered in the study by the companies listed on the Neuer Markt of the Deutsche Boerse).

It is perplexing, however, that the Neuer Markt of the Deutsche Boerse has decided to cease operations by the end of 2003 although listed companies were disclosing information according to U.S. GAAP or the IAS.

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## Reply

# Neuer Markt quarterly reports: A reply to a comment

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Dimitrios C. Ghicas raises concerns about the following issues.

1. Statistical tests would have increased the internal validity of the findings.
2. Some dimensions of the study could have been pursued further.
3. The absence of a theory of disclosure to guide the researcher poses a major difficulty to anyone working in this area.
4. Deutsche Börse has decided to close down the Neuer Markt.

In the following, we will briefly discuss some aspects of these concerns.

## 1. Validity of statistical tests

We do not believe the application of statistical methods instead of discussion of the graphs would have increased the validity of our findings due to the very small sample we used. Statistical tests are helpful and necessary for a mass of data that cannot be analyzed easily. Even with special statistical methods for small samples, we would not have come to other conclusions. So we decided to show the patterns of the data instead of presenting statistical numbers, thus allowing every reader to follow our analysis. We believe that the real findings of some studies could be obscured by advanced statistical method, which is not appropriate in these cases.

## 2. Some dimensions of the study could have been further pursued

We agree that some dimensions of the study could have been pursued further. However, the analysis of the value relevance of disclosure would have changed the scope of the

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study. Specifically, the association between stock returns following the disclosure and the index might not give the right indication of the value relevance because in the observation period, we explored counter-intuitive market reactions. For example, the worst-ranked company regarding the timing and quality of quarterly disclosure showed a remarkable market performance for the period of “bubble economy” in 2000 and 2001. However, many market participants started to consider the disclosure quality after the dramatic crash following that period. So a study focusing on a longer time period could certainly give some indications.

Secondly, Ghicas proposes that we provide more insight on the profile of the groups of companies with high or low disclosure levels, e.g., on size, debt-to-equity ratio, auditor employed, industry composition, systematic risk, etc. We offer this study as a first step to analyze the development of quarterly disclosure quality in the unique setting of the Neuer Markt and admit that additional research is needed to clarify the reasons for good and bad quarterly disclosure.

### **3. Absence of a theory of disclosure**

We find the discussion on studies on the costs and benefits of increasing disclosure very helpful. But we understand these studies not as a contradiction to the cost-of-capital argument but as the concentration on an aspect that is easier to observe. This is valid, especially for Healy, Hutton, and Palepu (1999).

### **4. Closing down of the Neuer Markt**

The technology-focused Neuer Markt, once considered Europe's answer to the technology-heavy U.S. NASDAQ Stock Market, is coming to an end. The Deutsche Börse announced that it would close down the 5 1/2-year-old, scandal-plagued market segment by 2003 (Deutsche Börse 2002). In fact, with the switch of the last company in Neuer Markt into Prime standard the Neuer Markt has closed on June 5, 2003 (Deutsche Börse 2003). The frenetic phase of Europe's dot-com capitalism is coming to an end and investors now stand before a heap of ruins, but the critical question for us relates to lessons in formation disclosure. In announcing the restructuring of the German stock market, the Deutsche Börse indicated that it would bring some of the Neuer Markt's better ideas to a broader market. The Prime Segment is to include international companies and requires, as the Neuer Markt did, quarterly reports either according to IAS or U.S. GAAP. The advantage of the Prime Segment could be that it will stand on a broader basis and, as a consequence, ex-Neuer Markt companies become comparable to blue-chip-companies such as DAX companies since they are now listed in the same segment. However, the conclusion from our study, adherence to disclosure requirements and their effective enforcement take time and resources, should be taken seriously by standard setters. The Deutsche Börse does not seem to have heeded this message. In the light of the impact of the EU regarding IAS Regulation (European Union 2002) to more than 7000



companies, additional steps to improve the quality of financial disclosure from the EU member states are certainly necessary.

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## Accounting behavior of German firms after an ADR issuance<sup>☆</sup>

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### Abstract

This paper presents preliminary evidence on whether German corporations that issue American depositary receipts (ADR) experience a change in the level of garbling in earnings as expressed under German Generally Accepted Accounting Principles (GAAP). In a shareholder regime, a manager's objective is to maximize the company's stock price. Past literature suggests that this will lead managers to follow a policy of more disclosure. In stakeholder regimes, managers have an ill-defined objective function and their compensation is not typically sensitive to the price of the stock. This literature suggests that managers in stakeholder regimes will manipulate earnings to satisfy the various constituents of the firm. By issuing an ADR, a company changes its regime: shareholders become relatively more important to the manager. To maximize the stock price, managers should minimize the overall noise in accounting numbers even under local GAAP. The empirical results are generally consistent with this hypothesis, but a small sample size prevents drawing definitive conclusions.

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### 1. Introduction

This paper provides preliminary evidence on whether German corporations that issue American depositary receipts (ADR) experience a change in the level of garbling in their

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earnings expressed in local (i.e., German) Generally Accepted Accounting Principles (GAAP). I define garbling as noise in accounting numbers that does not carry any information about the value of the firm.

The goal of this paper is to study the amount of discretion that managers have to change the quality<sup>1</sup> of accounting reporting in response to changes in economic incentives. The literature often assumes that market demand for information affects the legal structure of accounting (i.e., how the rules are written). In addition, it typically equates demand with financial markets, excluding other economic agents such as labor, taxing authorities, etc. Joos and Lang (1994), for example, state that “accounting standards develop to a large part to satisfy the needs of those who provide capital.” Yet, the demand for accounting information is broader than the needs of financial markets. The quality of financial statements may be affected not only by the needs of the users but also possibly by the needs of those who provide the financial statements (i.e., managers).

From a policy point of view, three things can be done to increase the quality of accounting information: improvement standards, increase in enforcement of those standards, or change managers’ incentives. The first one is probably the most studied. There is a vast literature on what should be the optimal accounting rule to treat a particular economic event. However, improvement in standards alone is not sufficient to improve financial information. For example, Harris, Lang, and Moeller (1994) find “little evidence of increased explanatory power of accounting data (in Germany) following the Accounting Directives Law<sup>2</sup> of 1985,” which they considered surprising because “many accounting practices in the German reporting system were thought to be improved.” This result is also supported by Joos and Lang (1994) who find that the significant differences between European countries in financial ratios and stock market valuation of accounting data have not been reduced by the European directives. Ball, Kothari, and Robin (2000) also report that, although Southeast Asian countries have a common law legal framework, earnings from these countries exhibit properties similar to those from code law countries. They attribute this fact to weak outside monitoring. A second option is to improve enforcement of accounting standards. Indeed, in the United States, two legal rulings in 1983 subsequently led to an increase in accounting conservatism.<sup>3</sup>

However, a third approach to improving accounting information is to change the incentives for the managers who prepare the financial statements. This is, of course, related to the level of enforcement, because economic incentives are influenced by legal penalties. However, the two notions are not identical, as the economic incentives could be changed without changing the legal framework. One scenario is to modify the system of corporate governance to give more power to shareholders. I hypothesize that reporting practices not only vary to meet the

<sup>1</sup> Accounting quality can be measured along many dimensions. For the purpose of this study, high quality is defined as having low amounts of garbling.

<sup>2</sup> In the late 1970s and 1980s, the European Community passed several directives aimed at improving accounting standards in Europe. In particular, the Fourth Directive required additional financial disclosure. The Seventh Directive required consolidated accounts.

<sup>3</sup> See Basu (1997) or Kothari, Lys, and Watts (1988).

demands of economic agents such as shareholders, creditors, labor unions, and taxing authorities but also are affected by the supply side (i.e., the managers' incentives). When a German firm issues ADR, it changes its economic regime (i.e., the importance of different users changes, which means that the manager's incentives also change), but it still must report under local GAAP. There is no change in the accounting standard. Arguably, the enforcement is stiffer after the ADR issuance because the firm would be subject to the U.S. securities laws and the Securities Exchange Commission (SEC). However, the SEC is more concerned with the accounting information published under U.S. GAAP (or the reconciliation with U.S. GAAP) than with the information released under German GAAP. The study of how accounting properties change after issuance of ADR provides a natural experiment to see how much freedom a manager has to modify the quality of accounting numbers under a given GAAP regime.

It now appears that the literature (e.g., Brummer, 1991) accepted the different goal phenomenon: the goals of managers are different in shareholder countries such as the United States or the United Kingdom from such goals in stakeholder countries such as Germany. In a shareholder regime, the manager's objective is to maximize the company's stock price, whereas in a stakeholder regime the objective function is not so well defined. Management compensation is often directly linked to share value in the first regime, but it is not typically sensitive to stock price in the second one (Murphy, 1999). Past literature suggests that if managers want to maximize the stock price, they will disclose more information (e.g., Diamond & Verrecchia, 1991; Jovanovic, 1982) and engage less in earnings management (e.g., Alford, Jones, Leftwich, & Zmijewski, 1993; Warfield, Wild, & Wild, 1995). However, managers facing strong stakeholders tend to manipulate information in general and earnings in particular to satisfy the various constituents of the firm (e.g., Bowen, DuCharme, & Shores, 1995). Thus, the difference in objectives affects not only the general amount of information disclosed but also the amount of value-irrelevant information incorporated into the accounting numbers.

Issuing ADR changes the company's economic regime, and as a result, shareholders become a relatively more important constituency (i.e., they become more important in the manager's objective function). Anecdotal evidence also suggests that the manager's compensation becomes more closely tied to stock price after ADR issuance. Therefore, firms issuing ADR, although originating from a stakeholder regime, should behave more like firms in a shareholder economy: disclosure, and accounting quality should increase.

The hypothesis that accounting garbling declines after ADR issuance leads to three testable predictions. Specifically, (1) local earnings numbers should become more value relevant, (2) accruals should be priced at a higher level, and (3) accruals should become better predictors of future profitability. In testing the first hypothesis, I operationalize value relevance using a regression of price on book value (of equity) and abnormal earnings. I measure the amount of information in earnings and book value by considering their respective incremental  $R^2$ . I also consider the change in the magnitude of the abnormal earnings coefficient. With respect to the second hypothesis, Subramanyam (1996) finds that, in the United States, discretionary accruals are positively valued by the market, suggesting that managers of U.S. firms use accruals to convey useful information beyond that contained in cash flows. If managers in



stakeholder economies use discretionary accruals to garble earnings, the market should not price them. If the reporting becomes more truthful after the ADR issuance, accruals, and especially discretionary accruals, should be valued significantly and positively. With respect to the third hypothesis, Subramanyam notes that discretionary accruals are informative in that they help predict future profitability. If managers start to use accruals to convey more truthful information about valuation, there should be a stronger positive correlation between accruals and future profitability.

I test these hypotheses using German data. While there is a consensus that the United States is the archetype of the shareholder regime, Japan and Germany are presented as the typical cases of the stakeholder regime. This may lead academics and practitioners to believe that the German accounting system leads to lower quality than the U.S. system. For example, past surveys indicate that a majority of German managers and academics consider U.S. GAAP to be more informative than German GAAP (Foerschle, Glaum, & Mandler, 1995, 1998). Similarly, Alford et al. (1993) report that U.S. GAAP has a higher information content than German GAAP, while Harris et al. (1994) report that the value relevance of financial statements (expressed by the explanatory power of a regression of price on earnings and book value) is higher in the United States than in Germany. This study will further investigate this claim.

German GAAP present two additional interesting features that make it worthwhile to study. First, consolidated accounts have been required since 1985. Second, until April 1998, firms were required to prepare consolidated financial statements in accordance with German GAAP, whether or not their shares were traded on a foreign market.<sup>4</sup> Thus, the German accounting regime is different but in some respects is comparable to the American one. To distinguish hypothesized outcomes from confounding factors arising at the time of issuance, I compare the results obtained from the sample of German issuers with those obtained from a random sample of German non-ADR-issuing firms and a sample of British ADR-issuing firms. The first sample controls for systematic movements in the German economy; the second controls for changes associated with ADR issuance but not with changes in corporate governance (because the British system is typically considered more similar to the American one).

Empirical results are generally consistent with the predictions. However, a limited sample size precludes performing robust statistical analysis or controlling for self-selection in the sample. The results should therefore be considered as exploratory and tentative. As hypothesized, the value relevance tests indicate that the incremental  $R^2$  due to the inclusion of abnormal earnings in the regression increases over time. In addition, the magnitude and significance of the coefficient on abnormal earnings increases for German ADR-issuing firms but not for either the British issuers or the German nonissuers. The change in the explanatory power of accruals also supports the hypothesis of a reduction in garbling. In the preissuance period, the coefficient on accruals is insignificant. In the issuance and postissuance periods, the magnitude of the coefficient increases and the coefficient becomes significant. A sample of British firms does not exhibit the same degree of change. Finally, accruals also appear to become a better predictor of future cash flows. The coefficient on contemporary accruals

<sup>4</sup> To increase homogeneity in the sample, I focus on German firms.



increases in both magnitude and significance. The  $R^2$  of the regression using cash flow decreases, however, indicating that cash flows may become more difficult to predict after an ADR issuance.

This paper contributes to our understanding of foreign accounting practices. Specifically, it adds to the literature by exploring the idea that the alleged lower quality of German accounting information is not only due to the way the rules (i.e., GAAP) are written<sup>5</sup> but also to the way they are implemented by managers. It also links accounting properties with corporate governance and managers' incentives. In so doing, it shows that the relations found at the firm level in the United States (Bowen et al., 1995; Warfield et al., 1995) between a manager's stock price sensitivity or the importance of stakeholder to the manager and accounting choices are also found internationally. This paper differs from previous international research that typically treats all non-Anglo Saxon countries as one group and ignores the heterogeneity in corporate governance across countries. By focusing exclusively on one country, this research establishes a more direct link between institutional structures and empirical accounting behavior. However, the cost of this approach is to drastically reduce sample size.

The remainder of the paper is organized as follows. Section 2 develops the hypotheses and presents the testable implications. Section 3 describes the sample. Section 4 describes the empirical design and outlines the results. Section 5 concludes the paper.

## 2. Hypotheses development

### 2.1. *Managers' goals in different regimes*

#### 2.1.1. *Objectives in the stakeholder regime*

In stakeholder economies, the manager's objective is to maximize the welfare of the firm and not necessarily that of its owners. For example, Balz (1999) states that, as a matter of German law, "management has a fiduciary duty to the company and not directly to the shareholders." Consequently, managers must balance their actions to maximize the potentially conflicting goals of all constituents of the firm (e.g., employees, customers, suppliers, creditors, the state, shareholders, or even the environment). For example, they may want to appear less risky so that creditors will keep extending credit but not look too profitable so that labor will not ask for high irreversible pay raises (as wages cannot be reduced in bad times and firing is difficult and costly).

The personal incentives of managers are influenced by these conflicting goals. Executive compensation is not strongly tied to stock prices. For example, Murphy (1999) reports that "(U.S. executives) are paid differently than CEOs elsewhere: U.S. CEOs receive a larger fraction of their pay in the form of stock options and a lower fraction in the form of salaries (...). Indeed, stock options (and other long-term incentives) are absent in 9 of the 23

<sup>5</sup> This paper is agnostic on the quality of the standard themselves.

countries surveyed and comprise less than 5% of total pay in 23 countries.” In fact, the main risk for the manager is often to be fired if earnings are lower than expected. Kaplan (1994) reports that the turnover of the chairman of the management board in Germany is not related to poor stock performance but to negative earnings. Consequently, in a stakeholder economy, managers have very limited personal upside benefits arising from disclosing more good news; they are mostly salaried employees and face personal risks by disclosing bad news (i.e., the risk of being fired in case of weak accounting performance).<sup>6</sup> They, therefore, have an incentive to garble accounting numbers in order to reach their conflicting goals.

### *2.1.2. Shareholder regime and stock price maximization*

In a shareholder economy, the goal of managers (abstracting from agency problems) is to maximize shareholders' value subject to various regulatory or economic constraints. In general, poor disclosure lowers stock prices because only the worst companies would choose not to disclose more information (assuming that there are no disclosure costs) (see Grossman, 1981; Jovanovic, 1982; Milgrom, 1981; Spence, 1973). When a price-maximizing manager withholds information, investors lose confidence in quality of the investment the manager has made and they discount its quality to the point where the manager is always better off with a full disclosure policy.<sup>7</sup> Empirical results by Leuz and Verrecchia (2000) support these predictions.<sup>8</sup> Diamond and Verrecchia (1991) also report that large firms, which are more likely to issue ADR,<sup>9</sup> benefit most by more disclosure.<sup>10</sup> In addition, Diamond (1985) also shows that additional disclosure increases the welfare of shareholders because of explicit information cost savings (i.e., shareholders do not have to devote resources to acquiring private information) and improved risk sharing.<sup>11</sup>

<sup>6</sup> Empirically, Ball et al. (2000) find that conservatism is stronger in stakeholder countries than in shareholder ones.

<sup>7</sup> Diamond and Verrecchia present an alternative argument. They theorize that revealing public information reduces information asymmetry. This reduces the firm's cost of capital by attracting increased demand from large investors due to the increased liquidity of its securities. Finally, Perotti and von Thaden (1998) show that a bank-controlled firm will disclose less than a shareholder-run firm. Their argument relies on the fact that additional disclosure will affect competitors' production levels. This will increase the expected value and the variability of profits and output for the firm that discloses. Therefore, creditor-controlled firms will discourage transparency to increase the value of the firm's debt, but firms controlled by fully diversified shareholders will encourage transparency.

<sup>8</sup> The authors find a reduction in the bid-ask spread and an increase in trading volume (but not a decrease in price volatility) after German firms start reporting under U.S. GAAP.

<sup>9</sup> Foerster and Karolyi (1999) indicate that “cross-listed firms tend to be very large with an average capitalization of US\$2.5 billion.”

<sup>10</sup> The intuition for this result is that the larger the size of the firm, the more the security price depends on how broad a market the firm attracts. For large firms, it is important to attract large holdings from institutional investors who make large trades and are more concerned about future liquidity.

<sup>11</sup> This arises because public information makes traders' beliefs more homogenous and reduces the magnitude of speculative positions that informed traders take.



## 2.2. Accounting implications

### 2.2.1. Previous empirical findings on financial reporting quality

Although the previous section suggests that managers in a stakeholder regime disclose more than will managers in a shareholder regime, this does not necessarily imply that the additional disclosure will be accomplished through higher-quality accounting. However, Botosan (1997) reports some evidence that “a measure of disclosure level produced by examining any one aspect of corporate reporting could proxy for the general level of disclosure provided by a firm.”

In addition, the literature suggests that corporate governance and managers' incentives have implications for earnings properties as well. At the economy level, Ball et al. (2000) report that properties of earnings vary internationally in response to various institutional backgrounds. They further claim that the “most important institutional factor influencing international differences in earnings properties is corporate governance” and that “the demand for public disclosure is not as great in code law as in common law countries.” Alford et al. (1993) also find that, controlling for the variance of financial markets, U.S. financial statements are generally more value relevant<sup>12</sup> and timelier.<sup>13</sup> At the firm level, Warfield et al. (1995) establish a link between corporate governance and earnings properties. They report the following two results:

- (1) The explanatory power of accounting earnings for stock returns is systematically related to managerial ownership. The more managers own stocks (and hence are more concerned about shareholder value),<sup>14</sup> the more earnings are value relevant. This is consistent with the assertion that financial reporting is more truthful in shareholder countries, where managers care more about stock prices.<sup>15</sup>
- (2) The amount of accruals is systematically related to managerial ownership (the less stock managers own, the more they manage earnings). Warfield et al. analyze this relation as the manager's attempt to capitalize on the latitude in reporting accounting numbers to mitigate contractual constraints. The relation between stakeholders and accounting choices has also been empirically documented by Bowen et al. (1995). Even in a shareholder economy, they establish a relation between stakeholders' importance and

<sup>12</sup> Exceptions are other Anglo Saxon countries (e.g., Australia, Canada, and the United Kingdom) as well as France and Switzerland.

<sup>13</sup> They report that only Ireland and the United Kingdom are timelier than the United States.

<sup>14</sup> Murphy (1999) reports that pay performance sensitivities are driven primarily by stock options and stock ownership and not by other forms of compensation.

<sup>15</sup> American managers typically own a higher percentage of their corporations than their counterparts in stakeholder countries. Holderness, Kroszner, and Sheehan (1999) report that the average percentage of ownership for American managers has been increasing since the 1930s from 13% in 1935 to 21% in 1995. Short and Keasey (1999) report a decline from 13.3% in 1988 to 11.4% in 1992 in the United Kingdom. Anecdotal evidence seems to suggest that the gap is even greater in continental Europe.



accounting choices. For example, they report a negative relation in the United Kingdom between unionization rate and result-decreasing accounting methods.<sup>16</sup>

### *2.3. Effects of the ADR issuance*

By issuing ADR and being traded in the United States, a company moves, at least partially, from a stakeholder regime to a shareholder regime; hence, the relevance of the different constituents as well as the manager's compensation are modified.

First, the importance of a firm's different constituents changes for managers. The power of labor remains essentially the same because labor still has representation on the supervisory board in Germany. Shareholders become relatively more important and creditors (especially banks) become less important to management, however. The power of banks decreases for two reasons. First, ADR may be used to raise capital, which dilutes the banks' share of the firm's capital. Second, and more important, German banks do not control the ADR votes through proxies as they do for German shares because they do not act as the custodian.<sup>17</sup> Baums and Fraune (1999) report that, in their sample,<sup>18</sup> German banks control 84% of all attending votes while owning only about 7% of equity. Most of the banks' controlling power comes from controlling proxy votes. Foerster and Karolyi (1999) report an average change in the shareholder base of 28.8% following an ADR issuance,<sup>19</sup> while Becht and Boehmer (1999) report that controlling 30% of the votes at an annual meeting of German companies may be sufficient to sway the decisions. Hence, the capital floating in the United States is sufficient to limit the banks' influence.

At the same time, shareholders become more important because the company faces a new clientele of stockholders (in the U.S. markets) who are accustomed to more stringent financial disclosure, valuation of profitability, and different corporate governance. These new shareholders may be the marginal investor. For example, Hedvall, Liljeblom, and Nammelin

<sup>16</sup> Even if accounting numbers are becoming more truthful, it is still possible that once the U.S. numbers are released, the German numbers become totally irrelevant for the investors and therefore would not be affected by this predicted rise in disclosure quality. For example, if the American numbers were sufficient statistics for the German statements, investors would rely only on U.S. financial statements. However, the lack of interest in German GAAP data is not supported empirically. First, Level I ADR companies are not required to issue financial statements in accordance or reconciled with U.S. GAAP. Therefore, U.S. GAAP statements may not be available. Besides, firms that reconcile typically do not do so in a timely fashion (generally 6 months after the fiscal yearend, close to the SEC deadline) (Gornik-Tomaszewski & Rozen, 1999). In addition, Chan and Seow (1996) report that earnings based on foreign GAAP are more closely associated with contemporaneous stock returns than are earnings reconciled to U.S. GAAP. Conversely, Amir, Harris, and Venuti (1993) report that 20-F reconciliations are value relevant. These two results suggest that investors use both domestic and U.S. GAAP numbers to evaluate the company.

<sup>17</sup> German banks typically receive power of attorney for the stocks for which they act as custodian.

<sup>18</sup> The sample was composed of 24 of the top 100 listed firms that had more than 50% of their shares widely held in 1995.

<sup>19</sup> This number is calculated for a sample of ADR from 11 different countries in Asia, Canada, continental Europe, and the United Kingdom.

(1999) report that, for the Finnish firm Nokia, the New York market has a more dominant effect on stock price than does the Helsinki market. Hubbard (1992) also finds that in many instances ADR returns are significantly more correlated with American markets than with European markets.<sup>20</sup> Then, if the managers want to retain these new shareholders,<sup>21</sup> they must either disclose more information or compensate them for taking additional risk associated with lower disclosure. The disclosure route is likely to be the case because most ADR holders are institutional investors<sup>22</sup> who actively demand increasing disclosure and improving corporate governance practices.

The manager's compensation is also affected both directly and indirectly by the ADR issuance. First, although I am unaware of any systematic study, anecdotal evidence suggests that European managers receive more stock options once their company is listed in the United States. For example, *The Economist* states that "Daimler-Benz has listed its shares in New York, (and started offering) its executives bonuses linked to the share price. Managerial performance used to be measured by a complicated formula unknown outside the company. The firm has now replaced that with the shareholder-friendly aim of increasing return on equity."<sup>23</sup> In fact, several German firms initiated a stock option program shortly after issuing ADR.<sup>24</sup>

## 2.4. Testable implications

I test whether earnings under German GAAP become more value relevant after ADR issuance accruals are priced at a higher level and whether earnings become better predictors of future profitability. A discussion of each test follows.

### 2.4.1. Value relevance of earnings and book value

I operationalize value relevance using a regression of price on book value and abnormal earnings (Collins, Maydew, & Weiss, 1997; Dechow, Hutton, & Sloan, 1999). This test implicitly assumes information efficiency of the German market.

In a world where the firm discloses limited information other than mandatory requirements, investors will rely relatively more on book values. Book values should be relatively less subject to noise than earnings because over the long run, accruals reverse. Conversely, if managers decide to reduce garbling in earnings, the noise would be reduced faster in earnings than it would in book values. I therefore predict that investors would rely more on earnings

<sup>20</sup> His study, however, does not include German companies.

<sup>21</sup> If there is too much discrepancy between supply and demand in the American market and the local market, ADR are redeemed and the underlying stocks become directly traded in the domestic market again. This process is known as "flowback."

<sup>22</sup> Velli (1994) reports that retail investors represent only 30% of ADR trading volume.

<sup>23</sup> *The Economist*, July 13, 1996, "Le Defi Americain, again."

<sup>24</sup> BASF nearly simultaneously issued ADR and created a stock option program (*Frankfurter Allgemeine Zeitung*, February 2, 1999). Deutsche Bank and RWE issued ADR in 1995 and a stock option program in 1997 (*Wall Street Journal*, April 3, 1998) and 1998 (*Borsen-Zeitung*, October 7, 1998).



after a decrease in garbling. To test the first hypothesis, I consider the incremental  $R^2$  attributed to including abnormal earnings in a regression of market value on book value. If abnormal earnings become more value relevant, the  $R^2$  should increase.

#### 2.4.2. *Market pricing of accruals*

The second prediction concerns the pricing of accruals. The extant literature suggests that accruals, on average, have incremental information content above cash flows (e.g., Bowen, Burgstahler, & Daley, 1987). However, managers can either use accruals to convey information beyond that contained in cash flows or try to manipulate the market or avoid losses. There exists a long literature on U.S. managers trying to manipulate earnings to meet various goals, e.g., among other reasons, to avoid losses (Burgstahler & Dichev, 1997), to smooth earnings (DeFond & Park, 1997), and to meet regulatory requirements (Beatty, Chamberlain, & Magliolo, 1996). Yet, Subramanyam (1996) finds that, in the United States, discretionary accruals are positively valued by the market and have incremental explanatory pricing power over both nondiscretionary accruals and cash flows. On the other hand, Bartov, Goldberg, and Kim (1998) find that in Germany and Japan, earnings are not superior to cash flows for equity valuation purposes.<sup>25</sup>

The question arises as to the role of discretionary accruals in a stakeholder regime. If managers in stakeholder regimes use discretionary accruals to garble earnings and thus add noise to cash flows, the market would not price accruals before ADR issuance. After issuance of ADR, managers would be expected to use accruals as in the stockholder economy and accruals should be priced.<sup>26</sup> To test this prediction, I regress market value on book value, operational cash flows, and operational accruals.<sup>27</sup> I predict that the coefficient on accruals becomes significantly positive after issuing ADR and would also increase in magnitude.

#### 2.4.3. *Profitability predictions*

The third prediction concerns the power of accounting numbers to predict profitability. Subramanyam (1996) notes that discretionary accruals are informative insofar as they help to predict future profitability. He reports that in the United States such accruals are positively associated with future operating cash flows, nondiscretionary income, and net income.

To test this prediction, I regress future operational cash flows on contemporary operational accruals (controlling for contemporary operational cash flows) before and after the issuance of ADR. I predict that the regressions  $R^2$  as well as the value and the significance of the coefficient on accruals should increase after ADR issuance. This test has also an additional advantage. One possible interpretation of ADR issuance is as a signaling device. It is possible that the issuing

<sup>25</sup> There is an exception in their nonconsolidated Japanese sample.

<sup>26</sup> This test assumes that the market correctly incorporates the information (see Sloan, 1996; Xie, 2001).

<sup>27</sup> This test is a test of statistical association and does not claim to be a full-fledged valuation model. As explained by Francis and Schipper (1999), “the presence of statistical association does not, in or of itself, mean that the information in question is actually used by the investors in setting prices, only that it is correlated with the information that is used. (...) This definition of value relevance is measured by the ability of the financial statement to capture and summarize information that affects share values. This interpretation abstracts from timeliness and market expectations.”



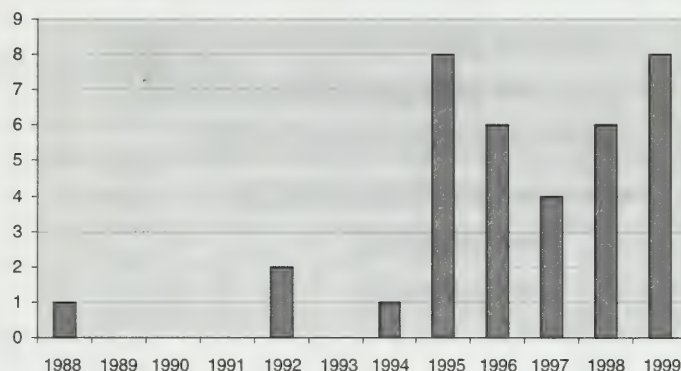


Fig. 1. Date of issuance of German ADR. The following graph summarizes the distribution of the date of issuance of sponsored ADR. The dates are retrieved from the Bank of New York Web site.

firms have always released high-quality accounting numbers, which increase but were incapable of credibly signaling this quality to the market. After the issuance, investors would rely more on accounting numbers, which increases the association between accounting numbers and stock prices. This reasoning does not explain why some firms would have higher-quality accounting information. By avoiding the use of any stock prices or returns, this test circumvents this issue and looks more directly at the quality of earnings.

### 3. Sample

ADR are identified using the Web site of the Bank of New York.<sup>28</sup> Thirty-seven German companies (including six banks or insurance companies) had issued sponsored ADR by the end of 1999. Out of the 31 different industrial companies, 13 were traded on an organized market (7 on NYSE and 6 on Nasdaq), 13 were traded OTC, and 5 were traded under the 144a rule. Information about the date of issuance, given in Fig. 1, indicates that the majority of German ADR were issued after 1994. The industry composition of the sample is presented in Fig. 2. Heavy industries and industrial goods are the main groups. To improve the consistency of the sample, companies from the insurance and banking sector are excluded. Returns and accounting information are retrieved from DataStream.<sup>29</sup> Because DataStream retroactively modifies numbers, for example, in case of mergers, the numbers used in this study are not the numbers as released.<sup>30</sup>

<sup>28</sup> <http://www.bankofny.com>.

<sup>29</sup> DataStream was used instead of other sources such as Global Vantage because it provided a better coverage of German ADR-issuing firms.

<sup>30</sup> The database is also subject to potential survivor bias. This is, however, not an issue in this study because no German ADR companies went bankrupt. (This may, of course, weaken the power of the tests.) Also note that firms that decide to issue ADR are presumably the ones that have lower costs (relative to the benefits) to do so. Thus, there is a self-selection bias in the sample that may understate the extent of the possible reduction in garbling for firms reporting under German GAAP.

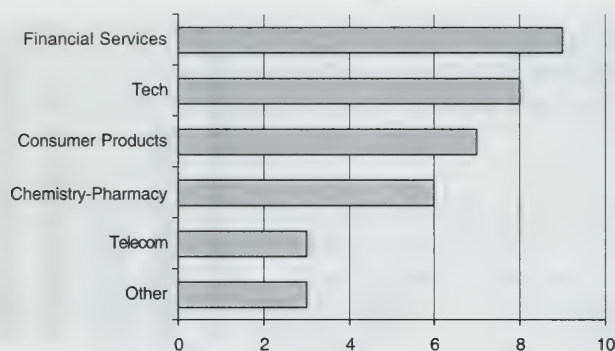


Fig. 2. German ADR's industry distribution. The following graph summarizes the distribution of ADR by industries. Data are retrieved from the Bank of New York Web site. Companies from the banking and insurance sector are excluded from this study.

I divide the sample into three periods: the preissuance period (4 or more years before ADR issuance), the issuance period (between 3 years before the issuance and the issuance year) and the postissuance period.<sup>31</sup> To further increase the consistency of the analysis, I require that all firms in my sample have at least one observation in each of the three periods. These requirements lead to a sample of 10 firms.<sup>32</sup>

Table 1 presents the summary statistics. Table 2 provides correlations coefficients. The sharp increase in market value in the postissuance period is due to strong growth in the capitalization of one of the companies (Mannesmann). The profitability increases between the preissuance and the postissuance periods. Consistent with the idea that German managers consistently smooth earnings and produce conservative book values, the average accruals are negative and are negatively correlated with both earnings and cash flows. This negative correlation weakens (but does not disappear) in the postissuance period.

#### 4. Results<sup>33</sup>

All results are reported in millions of euros for German companies and millions of pounds for British firms.

<sup>31</sup> Taking 3 years for the issuance period also ensures that the size of the three samples is comparable. It is likely that a company that plans to issue ADR starts reducing the garbling several years before the issuance. Discussions with practitioners indicate that the delay between the decision and the actual issuance may be around 3 years.

<sup>32</sup> BASF, Bayer, Continental, Fresenius, Henkel, Mannesmann, Puma, RWE, SAP, and Veba. Schwartz Pharma is also included in the last test.

<sup>33</sup> Following Harris et al. (1994), I do not use a short window approach for several reasons. Due to capital structure and lax nondisclosure laws, it may be difficult to determine the exact date when financial statements are released. In addition, from a practical point of view, it may be difficult to find the information itself even if a precise date were to exist.

Table 1  
Summary and descriptive statistics (in millions of euros)

Mean	Overall	Preissuance period	Issuance period	Postissuance period
MV	7556	3321	5968	17,505
Return	21.71	9.44	34.7	26.97
BV	3816	2940	3550	5506
Earnings	426	274	358	747
Percent of losses	5.3	8.5	5.5	0
ONE	710	515	513	1269
OCF	1420	1110	1243	2058
OAC	– 695	– 592	– 730	– 788
<i>n</i>	116	36	30	50

Summary statistics are presented for the following variables: MV=Market value at the end of fiscal year (as defined in DataStream), Return=unadjusted return over the fiscal year (as defined in DataStream), BV (DataStream Item 307), Earnings (DataStream Item 175), Percent of losses=percentage of firms that exhibit negative earnings, Operating net income (DataStream Item 993), and OCF=Operating net income (DataStream Item 993) plus Operational depreciation and provisions (Item 696) minus change in Current assets (change in Item 376) excluding Cash (Item 375) plus change in Current liabilities (change in Item 389). OAC are estimated by the difference between operating net income and operating cash flows.

#### 4.1. The value relevance of abnormal earnings

To test the first hypothesis, I run Eq. (1) as a pooled regression:<sup>34</sup>

$$MV_t = \alpha + \beta_1 BV_t + \beta_2 AE_t + \varepsilon_t \quad (1)$$

where  $MV_t$ =Market value of the firm (as defined in DataStream) 3 months after the closing of the books,  $BV_t$ =Book value (DataStream Item 307), and  $AE_t$ =Abnormal earnings defined as net income after taxes (DataStream Item 623) minus a charge for capital equal to 12% of the beginning book value. The rate of 12% is supported by Dechow et al. (1999) but remains somewhat arbitrary. A sensitivity check is done on this assumption. Results (not reported) indicate that the analysis is not sensitive to this assumption.

Table 3 contains the results. As seen there, although abnormal earnings are significant in the preissuance period and both the magnitude and the significance of the coefficient increase over time. The  $R^2$  remains stable between the preissuance period (92.8%) and the issuance period (91.3%) but declines in the postissuance period.<sup>35</sup> To test the significance of the change in coefficients, I run a pooled regression using the data for the three periods. I include interaction

<sup>34</sup> The size of the data set is insufficiently large to run time series or panel regressions in a meaningful way. The pooled specification, however, is not without problems because it forces all firms to have the same coefficient. Results can therefore be driven by changes in the homogeneity of the sample.

<sup>35</sup> To mitigate the possible influence of outliers, I rerun the regression in the postissuance period excluding Mannesmann. The magnitude of the coefficient on earnings is smaller (9.0 vs. 11.6), but the significance is similar ( $t$  statistics of 2.45 instead of 2.44). The coefficient on book value is larger and more significant. As a robustness check, I also rerun the regressions using earnings instead of abnormal earnings. Similar, or even stronger results (not reported), are obtained.



Table 2  
Pearson correlation table

	MV	Return	BV	Earnings	AE	ONE	OCF
Return	.31 (.000)						
BV	.75 (.000)	– .07 (.46)					
Earnings	.51 (.000)	– .03 (.73)	.82 (.000)				
AE	.21 (.031)	.04 (.65)	.12 (.21)	.57 (.000)			
ONE	.78 (.000)	– .04 (.68)	.86 (.000)	.95 (.000)	.54 (.000)		
OCF	.77 (.000)	– .05 (.60)	.95 (.000)	.90 (.000)	.27 (.006)	.86 (.000)	
OAC	– .55 (.000)	.05 (.61)	– .80 (.000)	– .62 (.000)	.06 (.57)	– .52 (.000)	– .88 (.000)

Correlations are presented for the following variables: MV = Market value at the end of fiscal year (as defined in DataStream), Return = unadjusted return over the fiscal year (as defined in DataStream), BV = Book value (DataStream Item 307), Earnings (DataStream Item 175), AE = Abnormal earnings (DataStream Item 623 minus a charge for capital used equal to 12% of previous book value), Operating net income (DataStream Item 993), and OCF = Operating net income (DataStream Item 993) plus Operational depreciation and provisions (Item 696) minus change in Current assets (change in Item 376) excluding Cash (Item 375) plus change in Current liabilities (change in Item 389). OAC are estimated by the difference between operating net income and operating cash flows.

The *P*-values are in brackets.

terms, the product of a dummy variable for each period with the explanatory variables. The interaction variables are significant for the book value (at the 1% level) and for the abnormal earnings (at the 10% level) in the postissuance period. Consistent with Collins et al. (1997), the variables in the model above are not deflated and are thus possibly subject to heteroskedasticity. However, when the variables are deflated by total sales, results are comparable.<sup>36</sup> The data also potentially suffer from serial and cross correlation. However, due to the small size of the sample, no meaningful corrective measure can be directly implemented.<sup>37</sup>

To control for systematic changes in the value relevance of all German firms, I compare the results of these regressions with a sample of firms that did not issue ADR. I randomly draw 1000 samples from a control group. To be included in the control group, firms must have all the data (book value, abnormal earnings, and market value) available in DataStream for the year, be industrial (financial and real estate companies are excluded), and be a German (subsidiaries or joint venture of foreign groups are excluded) company. In addition, I require that the size of the firms in the control group be in the range of size of the ADR-issuing firms.<sup>38</sup> Both samples (ADR and control) have the same number of observations in a given year.<sup>39</sup>

<sup>36</sup> The coefficient on abnormal earnings increases in magnitude and in significance. The significance of the coefficient on book value decreases. The  $R^2$ 's are, however, lower, except in the preissuance period.

<sup>37</sup> In addition, DataStream does not have time series of the number of shares for the German ADR-issuing firms. This and the fact that the regressions are run undeflated have the practical advantage of avoiding the "scale effect" described by Brown, Lo, and Lys (1999). However, as explained by Ohlson (2000), using the residual model on an all-equity basis implies making fairly strong assumptions (i.e., no change in the number of shares and no new shareholders who derive a net benefit from their capital contribution).

<sup>38</sup> Relaxing the condition on size gives similar results.

<sup>39</sup> Because DataStream does not report business sectors, matching on industry would require intensive data collection. In addition, due to the relatively small size of the German market, finding matching firms may not always be feasible.

Table 3  
Change in value relevance for German ADR-issuing companies

	Before	Issuance	After
Intercept	217	275	4035
<i>t</i> statistics	(0.75)	(0.43)	(2.26)
BV	1.25	1.67	1.56
<i>t</i> statistics	(19.97)	(15.38)	(6.46)
AE	2.55	6.60	11.59
<i>t</i> statistics	(2.45)	(3.15)	(21.44)
$R^2$	92.8	91.3	53.3
Number of observations	36	30	50

Model: Eq. (1), where  $MV_t$  = Market value (as defined in DataStream),  $BV_t$  = Book value (DataStream Item 307), and  $AE_t$  = Abnormal earnings (DataStream Item 623 minus a charge for capital used equal to 12% of previous book value).

The regressions are run three times using German data: the period immediately preceding the issuance period of the ADR, the issuance period (year – 3 to year 0), and the period following the issuance of the ADR. Issuance dates are retrieved from the Bank of New York Web site.

Results are reported in Table 4. In the preissuance periods, the population of ADR-issuing firms exhibits properties close to the nonissuing firms. The coefficient on abnormal earnings is, however, on average not significant. In both the issuance and the postissuance periods, the magnitude of the coefficient on earnings in the ADR group is twice as large as that in the control group. In addition, the coefficient of the control group remains on average insignificant.

To control for ADR effects unrelated to changes in corporate governance, I also compare the results from a sample of British ADR-issuing firms. One would anticipate that, because the British system of corporate governance is closer to the American one than it is to the

Table 4  
Change in value relevance for non-ADR-issuing German companies

	Before	Issuance	After
Intercept	182	16	37
<i>t</i> statistics	(0.99)	(0.07)	(0.05)
BV	1.83	2.30	2.53
<i>t</i> statistics	(2.14)	(1.98)	(1.41)
AE	1.57	3.38	7.24
<i>t</i> statistics	(0.15)	(0.31)	(0.45)
$R^2$	79	85.0	80.0
Number of observations	1000	1000	1000

Model: Eq. (1), where  $MV_t$  = Market value (as defined in DataStream),  $BV_t$  = Book value (DataStream Item 307), and  $AE_t$  = Abnormal earnings (DataStream Item 623 minus a charge for capital used equal to 12% of previous book value).

The control sample is formed by 1000 random samples of German firms that have not issued ADR but whose data are available in DataStream. The random samples are matched on years with the sample of firms issuing an ADR. Average and *t* statistics of the various parameters are reported.



Table 5  
Change in value relevance for UK companies

	Before	Issuance	After
Intercept	201	511	804
<i>t</i> statistics	(2.47)	(1.62)	(2.07)
BV	1.61	1.74	1.98
<i>t</i> statistics	(23.4)	(7.57)	(7.89)
AE	3.39	10.33	6.81
<i>t</i> statistics	(7.06)	(5.88)	(5.93)
$R^2$	76.4	57.5	47.0
Number of observations	228	135	299

Model: Eq. (1), where  $MV_t$  = Market value (as defined in DataStream),  $BV_t$  = Book value (DataStream Item 307), and  $AE_t$  = Abnormal earnings (DataStream Item 623 minus a charge for capital used equal to 12% of previous book value).

The regressions are run three times using UK data: the period immediately preceding the issuance period of the ADR, the issuance period (year – 3 to year 0), and the period following the issuance of the ADR. Issuance dates are retrieved from the Bank of New York Web site.

German, the effect of ADR issuance should be less important. Consistent with this prediction, results in Table 5 indicate that the magnitude of the coefficient on abnormal earnings increases after the issuance but that the change for the British group is smaller than in the German sample. The difference between the two samples, however, cannot be statistically established. In addition, the significance of the coefficient on abnormal earnings remains stable, but the  $R^2$  value steadily decreases over time.

While these results are consistent with the prediction that changes lead earnings to become more significant for investors after a German firm issued an ADR, they are difficult to interpret. For example, the increase in the magnitude of the coefficient could also be explained by structural changes in the way the firm operates.<sup>40</sup> To study more directly the amount of information contained respectively in earnings and book value, I consider the incremental  $R^2$ . The value of the earnings incremental  $R^2$  steadily increases over time. In the preissuance period, there is no difference in adjusted  $R^2$  between the full model and the model with book value only (92.3% vs. 91.2%), whereas the difference with a model containing only abnormal earnings is large (92.3% vs. 3.1%). In the issuance period, the difference in the book value model increases slightly (by 3% 90.6% vs. 87.6%) but is reduced in the earnings model by 78.8% (90.6% vs. 11.8%). In the postissuance period, the trend continues: the difference becomes 5.1% for the book value model (51.3% vs. 46.2%) but 41% for the earnings model (51.3% vs. 9.9%).

<sup>40</sup> One possible explanation would be that abnormal earnings become more permanent. Yet, this is somewhat counterintuitive, because one would expect German companies to move from a stable environment (i.e., low variability and low returns) to a more volatile one (i.e., high risk and high returns). Consistent with this analysis, the mean and the standard deviation of the abnormal earnings monotonically increase over the three periods.



Table 6

Value relevance of accruals versus cash flows for German ADR-issuing firms

German	Preissuance period	Issuance period	Postissuance period
Intercept	197	26	2687
<i>t</i> statistics	(0.64)	(1.01)	(1.54)
BV	1.30	2.34	1.28
<i>t</i> statistics	(6.11)	(3.84)	(1.51)
OCF	0.25	2.61	4.71
<i>t</i> statistics	(0.40)	(2.62)	(1.64)
OAC	0.87	3.51	5.24
<i>t</i> statistics	(1.35)	(2.69)	(2.12)
$R^2$	92.0	91.1	61.3
Number of observations	36	30	49

Model: Eq. (2), where  $MV_t$  = Market value at the end of fiscal year (as defined in DataStream),  $BV_t$  = Book value (DataStream Item 307), and  $OCF_t$  = Operating net income (DataStream Item 993) plus Operational depreciation and provisions (Item 696) minus change in Current assets (change in Item 376) excluding Cash (Item 375) plus change in Current liabilities (change in Item 389). Operating accruals are estimated by the difference between operating net income and operating cash flows.

The regressions are run three times using German data: the period immediately preceding the issuance period of the ADR, the issuance period (year  $-3$  to year  $0$ ), and the period following the issuance of the ADR. Issuance dates are retrieved from the Bank of New York Web site.

#### 4.2. Pricing of accruals

To test the second hypothesis, I run the following regression:

$$MV_t = \alpha + \beta_1 BV_t + \beta_2 OCF_t + \beta_3 OAC_t + \varepsilon_t \quad (2)$$

where  $MV_t$  = Market value at the end of fiscal year (as defined in DataStream),  $BV_t$  = Book value (DataStream Item 307),  $OCF_t$  = Operating cash flows, and  $OAC_t$  = Operating accruals. Operating cash flows are estimated as Operating net income (DataStream Item 993) plus Operational depreciation and provisions (Item 696) minus change in Current assets (change in Item 376) excluding Cash (Item 375) plus change in Current liabilities (change in Item 389). Operating accruals are estimated by the difference between operating net income and operating cash flows.

The results in Table 6 indicate that, in the preissuance period, book values explain most of the changes in the market. The coefficients on both cash flows and accruals are insignificant. During the issuance period, the magnitude and significance of the coefficient on book value is reduced but increase for the coefficient cash flows. The coefficient on accruals increases from 0.87 to 3.51, with a *t* statistic of 2.69. This phenomenon persists in the postissuance period. The coefficient on OAC is 5.24, with a *t* statistic of 2.12.<sup>41</sup> Because the standard errors in the

<sup>41</sup> When Mannesmann is excluded from the sample, the coefficient is 4.92, with a *t* statistic of 2.52, and cash flows cease to be significant.

Table 7

Value relevance of accruals versus cash flows for British ADR-issuing firms

	Preissuance period	Issuance period	Postissuance period
Intercept	72	131	– 503
<i>t</i> statistics	(0.50)	(0.32)	(– 1.06)
BV	– 0.27	– 0.3	– 1.7
<i>t</i> statistics	(– 1.22)	(– 0.81)	(– 3.38)
OCF	12.6	13.87	21.1
<i>t</i> statistics	(11.4)	(8.82)	(17.0)
OAC	11.4	13.9	12.9
<i>t</i> statistics	(8.19)	(7.01)	(9.07)
$R^2$	92.7	69.6	83.9
Number of observations	49	80	113

Model: Eq. (2), where  $MV$  = Market value at the end of fiscal year (as defined in DataStream),  $BV_t$  = Book value (DataStream Item 307), and  $OCF_t$  = Operating net income (DataStream Item 993) plus Operational depreciation and provisions (Item 696) minus change in Current assets (change in Item 376) excluding Cash (Item 375) plus change in Current liabilities (change in Item 389). Operating accruals are estimated by the difference between operating net income and operating cash flows.

The regressions are run three times using German data: the period immediately preceding the issuance period of the ADR, the issuance period (year – 3 to year 0), and the period following the issuance of the ADR. Issuance dates are retrieved from the Bank of New York Web site.

regressions are potentially affected by cross correlation or heteroskedasticity, I use bootstrap estimates that utilize repeated sampling to obtain more robust standard errors (see Efron & Tibshirani, 1993). The procedure (both in a parametric and in a nonparametric specification) gives qualitatively similar results to those obtained with OLS.

Table 8

Cash flows predictors for German ADR-issuing firms

	Preissuance period	Issuance period	Postissuance period
Intercept	88.16	120.04	205.42
<i>t</i> statistics	(0.64)	(0.90)	(1.33)
$OCF_t$	1.38	1.44	1.47
<i>t</i> statistics	(7.46)	(9.60)	(8.29)
$AOC_t$	0.71	0.90	0.97
<i>t</i> statistics	(2.49)	(3.32)	(3.22)
$R^2$	88.9	87.4	80.5
Number of observations	28	33	53

Model: Eq. (3), where  $OCF$  = Operating net income (DataStream Item 993) plus Operational depreciation and provisions (Item 696) minus change in Current assets (change in Item 376) excluding Cash (Item 375) plus change in Current liabilities (change in Item 389). Operating accruals are estimated by the difference between operating net income and operating cash flows.

The regressions are run three times using German data: the period immediately preceding the issuance period of the ADR, the issuance period (year – 3 to year 0), and the period following the issuance of the ADR. Issuance dates are retrieved from the Bank of New York Web site.

Table 9

Cash flows predictors for British ADR-issuing firms

	Preissuance period	Issuance period	Postissuance period
Intercept	33	60	– 38
<i>t</i> statistics	(2.01)	(1.89)	(– 0.74)
OCF <sub><i>t</i></sub>	1.18	1.20	2.15
<i>t</i> statistics	(19.27)	(11.29)	(12.40)
AOC <sub><i>t</i></sub>	1.38	0.77	2.19
<i>t</i> statistics	(9.76)	(3.75)	(7.17)
<i>R</i> <sup>2</sup>	93.05	73.6	66.88
Number of observations	31	73	90

Model: Eq. (3), where OCF = Operating net income (DataStream Item 993) plus Operational depreciation and provisions (Item 696) minus change in Current assets (change in Item 376) excluding Cash (Item 375) plus change in Current liabilities (change in Item 389). Operating accruals are estimated by the difference between operating net income and operating cash flows.

The regressions are run three times using German data: the period immediately preceding the issuance period of the ADR, the issuance period (year – 3 to year 0), and the period following the issuance of the ADR. Issuance dates are retrieved from the Bank of New York Web site.

Results for accruals in the postissuance period, however, are marginally more significant (the magnitude of the coefficient increases from 5.2 to 5.9 and the *t* statistic from 2.4 to 2.9). The *R*<sup>2</sup> remains stable in the issuance period but, consistent with results reported in Table 3, drops in the postissuance period. Excluding accruals from the regressions leads to a minimal drop in the adjusted *R*<sup>2</sup> in the preissuance period (91.0% vs. 91.2%). The difference increases to about 2.3% in the issuance period (87.8% vs. 90.1%) and 3.4% in the post issuance period (55.3% vs. 58.7%). The results from Table 7 indicate that there is no large change in either the magnitude or the significance of the accrual coefficient for a sample of British firms.

#### 4.3. Accruals and future profitability

To test the third hypothesis, I run the following regression:

$$\text{OCF}_{t+1} = \alpha + \beta_1 \text{OCF}_t + \beta_2 \text{OAC}_t + \varepsilon_t \quad (3)$$

where OCF = Operating cash flows and OAC = Operating accruals.

If accruals convey more information about future cash flows, the magnitude and the significance of the coefficient on OAC should increase in the issuance and postissuance periods. The results in Table 8 are consistent with this prediction. In the issuance and postissuance periods, the coefficient on accruals increases both in magnitude (from 0.71 to 0.90 and 0.97) and in significance (from 2.49 to 3.32 and 3.22).<sup>42</sup> Table 9 indicates that the accrual coefficient in a sample of British firms does not exhibit the same steady changes. The

<sup>42</sup> A parametric bootstrapping of the data gives slightly more significant coefficients, whereas a nonparametric procedure gives slightly less significant ones. Results remain qualitatively unchanged.



$R^2$  also is lower for the British sample. The  $R^2$  declines consistently over the three periods. This might be explained by the fact that the cash flows decline in persistence and are more difficult to predict.

## 5. Conclusion

In a shareholder regime, a manager's objective is to maximize stock prices. The past literature suggests that this will lead managers to follow a policy of higher disclosure and to reduce the amount of garbling in accounting numbers. In stakeholder regimes, managers have a more ill-defined objective and their compensation is not typically sensitive to stock prices and tend to manipulate earnings to satisfy the various constituents. By issuing ADR, a company changes its regime and shareholders become relatively more important. To maximize stock prices, managers should minimize the overall noise in accounting numbers.

Empirical results are generally consistent with the predictions, but they should only be treated as exploratory because of the very small sample size. The value relevance test indicates that the magnitude of the coefficient on abnormal earnings (as well as the incremental  $R^2$  due to the inclusion of abnormal earnings in the regression) increases over time for the German ADR-issuing firms but not for either British firms issuing ADR or German nonissuing firms. Accruals are not significantly priced before the issuance but become significant around the time of issuance and thereafter. In addition, the magnitude of the coefficient increases monotonically across the three periods. The explanatory power of accruals also supports the hypothesis of a reduction in garbling. As expected, a sample of British firms does not exhibit the same degree of change. Accruals also appear to become a better predictor of future cash flows. The coefficient on contemporary accruals increases in both magnitude and significance. However, the  $R^2$  values of the regression decrease, indicating that cash flows may become more difficult to predict after ADR issuance.

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Discussion

**Accounting behavior of German firms after an  
ADR issuance: A discussion**

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**Abstract**

Hilary [Int. J. Account. 38 (3) (2003) 357–378 (this issue)] analyzes the impact of German firms listing their stock on U.S. exchanges by means of American Depositary Receipts (ADR) on the noisiness of their accounting numbers, which is interesting. Unfortunately, due to severe sample size restrictions (i.e., the sample consists of 10 firms), the empirical designs lack the power to provide reliable evidence about any such impact. Moreover, across a broad set of noisiness measures, including several not considered by Hilary, the evidence of any ADR-issuance impact is decidedly mixed.

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**1. Introduction**

Hilary (2003) undertakes a novel and, in its conception, quite interesting examination of the impact of the decision by German firms to list their stocks on U.S. equity exchanges on the “quality” of their financial reports. In concept, it provides a useful complement to the existing literature on cross-country differences in reporting “quality.” Specifically, prior studies by Alford, Jones, Leftwich, and Zmijewski (1993) and Ball, Kothari, and Robin (2000) document systematic differences in the informational quality of accounting reports across countries. An important proposed source of this cross-country variation in quality is whether a country’s governing legal code is code based or common-law based.

Distinct from prior empirical work in the area, Hilary (2003) addresses this question using a within-country, over-time design rather than a purely cross-sectional, cross-country

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design. The advantage of such a design is that it is highly robust to omitted country-level variables. That is, findings such as those reported in Alford et al. (1993) and Ball et al. (2000) may reflect a legal code effect, or they may reflect underlying cultural commonalities across countries giving rise to common legal codes, corporate governance structures, and financial-report quality levels. By focusing instead on the intrusion of another country's legal code structure on the reporting activities of German firms, Hilary's analysis provides a much stronger causal focus to the question of whether legal code form impacts reporting quality.

Unfortunately, while Hilary's (2003) analysis possesses conceptual merit, it is empirically suspect. Its sample size (10 firms) is woefully inadequate as a basis for drawing probabilistic inferences in a setting where the background noise levels are high and the hypothesized effect is modest. Hence, the paper's findings are *a priori* unreliable (see Burgstahler, 1987). Indeed, I question whether it should even have been further contemplated once the initial sample size limitation became known.

Perhaps as an indirect consequence of its insufficient sample size, Hilary (2003) treats yearly observation from the same firm as independent observations in much of his statistical analyses. Clearly, however, for the sorts of variables examined in this paper there is every reason to expect that the level of within-firm dependence is very high. Independence among observations is a vital assumption in conventional statistical analyses, such as those employed in the paper. Violating it renders the study's empirical findings *ex post* unreliable.

Finally, an alternative inferential approach that better fits the "indicative and explorative" nature of Hilary's (2003) analysis is to view its findings from a maximum-likelihood perspective. Under this perspective one simply takes observed statistical estimates as "best guesses" of true population values. Indeed, if one takes this study's 10 firms as a population (assuming that the models are correctly specified), then these estimates do, in fact, represent true population values. A careful consideration of how the various estimated relevant parameters change between the pre- and post-American Depositary Receipts (ADR) time periods, however, presents a highly ambiguous maximum-likelihood picture of the impact of ADR-issuance on reporting quality. Hence, in my opinion, this exploration indicates little, if anything at all, about the impact of ADR on German firms' reporting behavior.

## **2. *A priori* unreliability**

Empirical findings appealing to classical probability theory should be evaluated in light of the *a priori* likelihood that a proposed design will detect the hypothesized effect if it is, in fact, present. Absent such a characteristic, then one can place absolutely no credence in the failure to find an effect and very little credence in any significant findings, an important issue that is not as well recognized in the applied empirical literature. The reason for this degradation in credibility in the latter condition in spite of the explicitly controlled type I error rate (i.e., the *P* value) has its roots in Bayesian statistics. Specifically, if the design lacks power then it necessarily follows



that the hypothesized effect's presence or absence is of little consequence to the outcome of the statistical test. That is, chance, not underlying substance, determines test "findings" in low-power settings.

An illustrative example of the improbable nature of the "findings" reported by Hilary (2003) is found in the Table 3 value relevance (VR) analysis. Here, in a conventional valuation model analysis, the estimated coefficient for abnormal earnings (AE) rises from 2.55 in the pre-ADR-issuance period to 11.59 in the post-ADR period. The discussion that accompanies Table 3 reports that this coefficient shift is significant at the 10% level. However, in evaluating this reported significance we must recognize that it is driven largely by the very substantial shift in the size of the estimated AE coefficient. If the size of this shift is not credible then its consequence, the statistical test result, is likewise not credible. In this case I, and I think most individuals reasonably familiar with the literature on market-valuation models, find impossible to believe that a shift to an ADR-reporting regime by a German firm would be responsible for a threefold-plus improvement in the value relevance of its (estimated with gross error) abnormal earnings. Given the lack of evidence, there is no reason given to change that belief. Indeed, I would find the notion that such a change (or just about any sort of intentional change in reporting strategy effected by management) caused even a mere doubling of the earnings-valuation coefficient to be straining credulity. Hence, this "significant" finding seems no more substantive than one based on drawing a red ball from an urn containing 90 white balls and 10 red ones, which is also a valid—from a type I error-rate perspective—test of Hilary's coefficient shift hypothesis.

### 3. Ex post unreliability

Much of the paper's empirical analysis appeals to notions of statistical significance.<sup>1</sup> However, its significance measures are derived from pooled regression analyses in which the same firm appears multiple times, differing only with respect to year. The two dependent variables in play here, firm market value and operating cashflow, are certainly related over time. Indeed, it is plausible to assume that for a given firm they are drawn from a firm-specific distribution that is stable over time and that associated regression parameters are constant over time. Such an assumption, in fact, typifies time-series designs. Under these conditions the inclusion of more than one year's observation for a given firm in a cross-sectional regression violates the independence of observations assumption of OLS regression. This violation is, in particular, critical to the validity of "significance" findings since it severely compromises both coefficient standard error estimates and residual variance estimates (when the frequencies with which firms appear in the sample are unequal as is true here) in a cross-sectional design.

<sup>1</sup> By my count the paper appeals to the notion of statistical significance at least 27 times, based on a word count of the number of times terms such as "significant," "insignificant," "significance," and "significantly" appear in it.



As an illustration of the potential severity of a rather modest violation of the independence condition in very-small sample settings, I performed a market value as a function of book value and an abnormal earnings simulation exercise. In this exercise I simulate firm market values using the following equation based on Hilary's (2003) Eq. (1):

$$MV_{it} = a_i + b1_i BV_{it} + b2_i AE_{it} + e_{it} \quad (1)$$

Where  $a_i \sim N(300, 25)$ ;  $b1_i \sim N(1, .3)$ ;  $BV_{it} \sim N(4000, 250)$ ;  $b2_i \sim N(10, 3)$ ;  $AE_{it} \sim N(0, 250)$ ;  $e_{it} \sim N(0, 100)$ ;

This equation constrains a firm's book value (BV) and abnormal earnings (AE) coefficients to be identical over time while allowing BV and AE to vary independently across both firms and time.<sup>2</sup> Each iteration of the simulation involves an initial random draw of 10 coefficient sets (i.e.,  $b1_i$  and  $b2_i$ ,  $i = 1, 2, \dots, 10$ ). Each coefficient set is then matched with eight randomly generated independent-variable and error-term values to form a sample of 80 observations. The dependent variable is generated for each of these observations by means of these randomly generated values and Eq. (1). An OLS regression corresponding to Eq. (1) in Hilary is then performed using the first four observations for each firm  $i$  in order to test the hypothesis that  $b1 = 10$ . This process is repeated 500 times and the null hypothesis that  $b1 = 10$  is rejected in over 55% of the repetitions at the (nominal) 10% level.<sup>3</sup> That is, the test incorrectly rejects the true null hypothesis more than half of the time when the advertised incorrect rejection rate is a mere 10%.

The hypothesis of a directional shift in AE between two time periods (PRE and POST) is examined in this simulation setting by using all eight firm observations, rather than just the first four, and estimating the following model:

$$MV_{it} = a_i + b1_{PRE} PRE \times BV_{it} + b2_{PRE} PRE \times AE_{it} + b2_{POST} POST \times BV_{it} + b2_{POST} POST \times AE_{it} + e_{it} \quad (2)$$

where PRE (POST) is randomly set to 1 (0) for four out of each eight firm-level observations. The true hypothesis that  $b2_{PRE} = b2_{POST}$  is rejected in favor of the hypothesis that this coefficient is higher in the POST condition 9.2% of the time at the (nominal) 5% level.<sup>4</sup> Moreover, in a further simulation analysis in which the  $b2$  coefficient does shift, but randomly, between the PRE and POST conditions, the hypothesis of equality is rejected 23.8% of the time at a nominal (5% level) in favor of the hypothesis that it increased in the POST condition.<sup>5</sup>

<sup>2</sup> Placing firm-specific constraints on BV and AE, while plausibly more realistic, simply worsen the problem of overstated significance levels.

<sup>3</sup> It is rejected in favor of being smaller than ten 25.8% of the time and of being larger than ten 29.6% of the time.

<sup>4</sup> The hypothesis that the coefficient is smaller in the POST condition is rejected 10% of the time at a nominal 5% level.

<sup>5</sup> The hypothesis that the coefficient is smaller in the POST condition is rejected 25.2% of the time at a nominal 5% level.

Hilary (2003) correctly points out in his conclusion that the limited number of data points available precludes the estimation of “robust” standard errors.<sup>6</sup> Thus, Hilary recognizes the flaw in his research design and implementation. Unfortunately, this recognition does not alter the fact that the internal validity of the study is very weak. One positive benefit of this study, however, is the potential use of the paper in research methodology classes that highlight the need for high internal validity in any research study.

#### 4. Maximum likelihood ambiguity

The most plausible route to obtaining any sort of interpretation for the empirical evidence presented by Hilary (2003) is, I believe, to view the reported values as maximum-likelihood-point estimates (i.e., best guesses). Moreover, if we choose to view the 10 firms that comprise Hilary’s sample as a population of interest and further assume that the various empirical models employed are correctly (fully) specified, then these reported values can be viewed as exact population parameters, not sample-based estimates of such parameters, and hence free from (random) error. From this perspective, the various estimates, as portrayed by Hilary, are broadly supportive of his position that accounting number “noise” declines in the post-ADR time period.

Panel A of Table 1 lists six metrics that Hilary seems to focus on in making the case that the “empirical results are generally consistent with predictions.” These six metrics are the abnormal earnings coefficient and percentage-point increase in *R*-square from including abnormal earnings in the VR analysis; the operating-accrual coefficient and the percentage-point increase in *R*-square from including operating accruals in the regression of market value on book value and operating cashflows (the AVR analysis); the coefficient on operating accrual and *R*-square in the future cashflow prediction (the AFR analysis). Five of these six-point estimators change in the hypothesized direction between the pre- and post-ADR time periods. The one exception is the behavior of the *R*-square metric in the AFR analysis, which declines rather than increases. But, as Hilary (2003) notes, this *R*-square also declines in the British “control” sample, suggesting that this may reflect broader trends in intertemporal future cashflow explainability.<sup>7</sup>

In evaluating Hilary’s (2003) findings, however, we must be particularly careful to consider whether they encompass all of the obviously plausible measures pertinent to his proposition

<sup>6</sup> As a disturbing aside I believe it notable that the use of similar multiyear same-firm stacking procedures is rather common in contemporary studies. Abarbanell and Bernard (2000) and Bushee (2001), in particular, propose a serial-autocorrelation correction as a solution to the within-firm dependency problem that underlies my simulation findings. This correction, however, seems unlikely to succeed in moving rejection rates to their correct levels in the simulation since, by construction, the serial autocorrelation in the simulated data is zero.

<sup>7</sup> In general, however, coefficients and *R*-squares in both the British control and German test samples shift in the same directions between pre- and postperiods. Hence, while this similar shift in *R*-square implies the presence of a confounding temporal trend, the results taken as a whole suggest that similar temporal trends may account for most of the other shifts observed in the German test sample.



Table 1

Summary of stated and supplemental plausible maximum-likelihood predictions for Hilary (2003)

## Panel A: Predictions explicitly evaluated by Hilary (2003):

Test/ Model <sup>a</sup>	Measure of interest	Predicted shift in magnitude relative to pre-ADR period	Prediction holds
VR	Abnormal earnings coefficient	Increases	Yes
VR	Magnitude of increase in <i>R</i> -square from inclusion of abnormal earnings	Increases	Yes
AVR	Operating accrual coefficient	Increases	Yes
AVR	Magnitude of increase in <i>R</i> -square from inclusion of operating accruals	Increases	Yes
AFR	Operating accrual coefficient	Increases	Yes
AFR	<i>R</i> -square	Increases	No

## Panel B: Supplemental plausible predictions not evaluated by Hilary (2003):

Test/ Model <sup>a</sup>	Measure of interest	Predicted shift in magnitude relative to pre-ADR period	Prediction holds
VR	Percentage decrease in unexplained variation achieved by including abnormal earnings	Increases	No
VR	<i>R</i> -square	Increases	No
AVR	Percentage decrease in unexplained variation achieved by including abnormal earnings	Increases	Yes
AVR	<i>R</i> -square	Increases	No
AFR	Coefficient on contemporary cashflows	Does not increase (arguably decreases)	No
ERC	<i>R</i> -square	Increases	No

<sup>a</sup> The test/models are: VR, a regression of market value on abnormal earnings and book value; AVR, a regression of market value on book value, operating cashflows, and operating accruals; AFR, a regression of future operating cashflows on current operating cashflows and operating accruals; ERC, a regression of returns on earnings.

that a decline in “noise” has occurred. In Panel B of Table 1 I report similar maximum-likelihood outcomes for six additional measures that I believe to be plausibly pertinent to the occurrence of a “noise” decline. These measures are the percentage decrease in unexplained variation achieved from including earnings (calculated as the increase in *R*-square from including earnings divided by one minus the pre-earnings *R*-square value) and the overall *R*-square for the VR analysis; the percentage decrease in *R*-square achieved from including operating accruals and the overall *R*-square for the AVR analysis; the operating cashflow coefficient in the AFR analysis; the *R*-square in a regression of returns on earnings (ERC). Five of these six metrics Panel B can be determined from information provided in Hilary.<sup>8</sup> The sixth, the ERC *R*-square, is from a regression analysis of returns on earnings reported in a prior version of Hilary provided to me as the discussion document.

<sup>8</sup> Information necessary to determine other pertinent metrics, such as the percentage decrease in unexplained variation from including the current operating accrual variable in the AFR analysis, is unavailable in versions of the Hilary paper available to me.



Unlike Panel A, however, the behavior of the metrics reported in Panel B are largely unsupportive of the notion that local accounting number “noise” declined in the post-ADR time period. *R*-squares declined in the VR and AVR analyses, suggesting an overall decline in the ability of accounting-based numbers to explain cross-sectional variation in market valuations and predict future cashflows. The improvement in *R*-square, measured as the percentage of unexplained variation that is explained, from including earnings in the VR analysis declines from 12.5%  $\{(0.923-0.912)/(1-0.912)\}$  to 9.5%  $\{(0.513-0.462)/(1-0.462)\}$  in the post-ADR period.<sup>9</sup> The importance of operating cashflows, accrual-based accounting’s shadow information competitor, seemingly increases as reflected by the upward shift in the cashflow coefficient, and earnings explains less of the cross-sectional variation in returns.

Taken together with the six metrics that Hilary (2003) focuses on, the overall picture presented in Table 1 could not be more ambiguous. Six metric shifts support Hilary’s notion that ADR-listing decreases noise, another six, however, do not.

## 5. Conclusion

It is my understanding that this paper is, in part, the product of a summer research paper requirement that constitutes part of a Ph.D. program of study. The goal of such an exercise is to provide students with a hands-on self-directed research project experience. A secondary goal is to provide the student with a publication record prior to graduation. These are laudable objectives. However, there is a downside to this sort of summer paper requirement. Specifically, it places great emphasis on starting and **completing** a single project, often regardless of how unfruitful or unwieldy the initially promising research endeavor proves to be as it moves toward completion. Consequently, researchers operating in such a regime are blinded to the notion that some projects are best left undone. Instead, they are instilled with the belief that completion is everything, and once completed any research effort is publishable provided it is given the right sort of “spin.”

In the case at hand, I believe, we are observing a first-hand case of a real downside of summer-paper requirements. Once the limited sample size constraint became known, this project, which is conceptually sound and interesting, should not have been continued. Instead, it was completed within an environment ripe for opportunistic data analysis and interpretation. Given the limitations cited above, I do not believe that the paper provides any reliable insights about the impact of ADR issuance on the noisiness or informativeness of home country accounting numbers or reports.

<sup>9</sup> Hilary’s metric is bounded at the level of unexplained variation, which varies over time. Hence, in the VR analysis the highest possible score for earnings in the pre-ADR time period is 8.8% (100–91.2%) while in the post-ADR time period this upper bound for score rises to 53.8% (100–46.2%). It is hardly surprising then that the metric with the most upside potential tends to come out ahead. My alternative metric is bounded at 100% in both cases. That is, its potential magnitude is not mechanically related to the level of unexplained variation present prior to its inclusion in the model.

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Reply

## Accounting behavior of German firms after an ADR issuance: A reply

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In his discussion of Hilary (2003), Cready (2003) suggests that the study offers a novel approach and an interesting conception but criticizes the paper on the grounds that a small sample size limits the power of the test and potentially biases the standard errors and that results from alternative metrics lead to ambiguous results.

I certainly concur with the first criticism and this issue is repeatedly mentioned in the abstract, the introduction, the body, and the conclusion of the text. In addition, let me discuss another empirical problem, potentially more significant for the analysis, which is also mentioned in the paper but perhaps not sufficiently stressed. All the tests (as in fact in many other papers in the literature) assume that the decision to issue an American Depositary Receipt (ADR) is exogenous. This assumption is, of course, likely to be violated. Issuing the security is a decision made by the management as opposed to being externally imposed on to the firm. Thus, the results may be driven by variables not observed in the sample. For example, the expected cost of improving reporting quality or the possibility of altering the economic operations of the firm are probably going to be factored into the decision to issue the ADR. In addition, ex post modification of the operations of the firm and a change in its accounting behavior could also be endogenous. While the problems of a small sample disappear asymptotically and biases in standard errors should be correctable in a large sample, the issue of self-selection and endogeneity potentially leads to more severe biases in the analysis. Although there are econometric procedures to treat these problems (e.g., Heckman, 1979), they cannot meaningfully be implemented in a small sample. In this context, I agree with the discussant that the notion of “significance” in the results should be taken with a certain degree of skepticism.

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The discussant also proposes alternative metrics to evaluate the empirical results. All but one are either the overall  $R^2$  of the regressions or a direct function of  $R^2$ . However, as noted in 2.4.1, I do not believe those metrics are appropriate as  $R^2$  can be affected by factors other than quality of accounting information. For example, suppose that the postissuance accounting conveys more information about future expected cashflows but that the discount rate becomes more volatile or more heterogeneous across investors, we would expect a lower  $R^2$  in the regression even though accounting numbers are more informative. The last alternative metric proposed is the magnitude of coefficient of current cashflows in a regression predicting future cashflows. However, this coefficient is more a control for the cash-flow structure than a direct measure of accounting informativeness per se. For example, it is likely that the coefficient reflects the cashflows volatility. As mentioned above, there might be some endogeneity between accounting informativeness and cash-flow structure. Thus, the two might be linked, but the link is likely to be indirect and complex. Therefore, this metric may not be appropriate, either, at least not without having a clearer understanding of how the two interact. Hence, if we were to choose the “MLE criterion” offered by the discussant, I believe the results would still be broadly supportive of the hypotheses. However, even if we use this approach, it is important to note that the empirical results remain affected by the issue of endogeneity and should still be treated with caution.

So, where does that leave us? Certainly, the position that only papers where all the problems have been substantially solved should be published (presumably in a limited set of journals) has merit and I concur that publishing without presenting the known limitations of the research undertaken would be counter-productive. However, is there a niche for preliminary analysis of an important topic where the limitations are clearly stated? Ultimately, the reader and the editor will judge, but the topic of the accounting quality of European firms has recently received some considerable attention from practitioners, regulators, and the press. The discussant suggests that the analysis undertaken in this paper is interesting in its conception and helps us side-step some previous research limitations. I believe this study might be helpful in drawing attention to some research issues mentioned by the discussant, such as the omitted country-level variables, or to more practical problems, such as the empirical limitations of the DataStream database. The interest of this paper, if any, probably lies there more than in the empirical results, which suffer from acknowledged limitations.

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## Book reviews

**Accounting, Auditing and Taxation in the Russian Federation [An Update] 2001 Study** by Adolf J.H. Enthoven, Yaroslav V. Sokolov, Valery V. Kovalev, Svetlana M. Bychkovy, Irina M. Smirnova and Maria V. Semenova, The Center for International Accounting Development, The University of Texas at Dallas (UT-D), USA; St. Petersburg State University, St. Petersburg, Russia; and East-West Management Institute, Inc., New York/Moscow, 2001, 160 pp., US\$25 (from UT-D)

Since the publication of the previous edition of this book in 1998, Russia has continued its efforts to reform its systems of accounting and reporting as well as auditing and taxation. These efforts date back to 1989, when the Soviet Union started to attract foreign investments through joint ventures. At that time, it became apparent that the reporting needs of foreign investors were different from those of the state, which was the only user of financial statements in the USSR. Further economic reforms in the Soviet Union and later in Russia accelerated the transition to a new accounting system, which reflected the new economic and business environment of Russian companies as well as the appearance of new users and their distinctive needs for accounting records and financial reports.

Major steps in accounting reform since 1998 include the setting up of the Interagency Committee on Accounting Reform. This was recognition of the fact that accounting reform cannot be achieved solely by accountants, and it ensured the involvement of major parties affected by changes in accounting regulations. Other developments include the adoption of two sequential programs on Russian transition to the IAS, the enactment of a number of new regulations on selected accounting rules that narrowed the gap between Russian accounting norms and the IFRS (IAS), and some other actions. A number of big Russian companies now prepare, on a regular basis, additional sets of accounts based on the IFRS (IAS) or US GAAP. Auditing developments are facilitated by closer cooperation with the International Federation of Accountants, by a number of actions taken by the Russian Ministry of Finance involving the development of auditing regulations and auditing profession, and by companies seeking investments from Western countries. A number of important changes were introduced in the area of corporate taxation.

This book presents an overview of the status of Russian accounting, auditing, and taxation as of 2001. In its main sections, the authors (1) provide a summary of accounting principles required by Russian regulations, which are supported by brief comments on the background to their introduction and on their application in Russia, (2) describe the hierarchy of accounting regulations, (3) explain in some detail the provisions of the current Accounting Law as of 1996 with the amendments approved in 1998, (4) give a detailed explanation of the assets and equity

valuation rules, and (5) provide the layout of the Chart of Accounts and of the financial statements of Russian companies (followed by detailed attachments). Western readers, especially those who are familiar with the previous editions of the book, will be interested to see the significant progress in further transforming Russian accounting and the formats of financial statement towards Western practices. The book also describes the status of auditing in Russia, explains the taxation system in the country (with the exception of the Corporation Tax, because this regulation was enacted by the Russian Government after the book was published), provides a brief overview of education requirements for accountants in Russia, and gives the details of the accounting curriculum recommended as a base for Russian universities. The book also contains a chapter on a brief history of accounting in Russia.

Unfortunately, anyone who writes a book these days on the status of Russian accounting and auditing faces a risk of an immediate failure to reflect the up-to-date situation at any particular moment because of the very rapid changes occurring in the area. It could be regarded as a paradox, as Russia is often criticized for a slow pace of accounting reform. There could be a number of explanations for such a phenomenon but two, both mentioned in the book, seem to be the major ones: (1) the complexity and pervasiveness of the changes required to transform "centrally planned" accounting into "market economy" accounting and (2) the lack of coherency of many of the efforts in this area. Despite all these years of accounting reform, Russia still lacks an official conceptual framework of accounting and has not come up yet with the basic definitions of assets and liabilities and the associated measurement and recognition criteria. A better understanding of the role of accounting in a market economy and its interrelation with microeconomic, finance, and other areas is still to come as well as the training and skills to make a professional judgment based on the economic essence of a particular transaction.

Therefore, a number of the more recent changes in Russian accounting, auditing, and taxation are not covered in the book. This includes, for example, regulations on accounting for loans and associated costs, for discontinued operations, for research and development costs, for income taxation, and for financial investments. As mentioned above, tax legislation has been amended by the introduction of the famous Chapter 25 of the Tax Code on corporate tax, which has had a major impact on accounting practice, because it contains detailed explanations of accounting records for tax purposes. While finally separating economic and taxation reporting, this pronouncement could become a detriment to financial reporting for the sake of compliance with tax accounting rules, because compliance with both sets of requirements might be too costly and complicated for the majority of Russian companies. There is a concern that, in the light of a lack of pressure and demand from users as well as sanctions and incentives within the province of regulators, statutory financial reporting by Russian companies might be set back. It is also important to point out that, contrary to the case in previous years, the area of management accounting is attracting a growing interest, especially from the enterprises and the Ministry of Trade and Economic Development, which seems to play an increasing role in the field of accounting policy. In view of the fact that the authors talk about the involvement of Western parties in accounting reform in Russia (French professional bodies, the UN Centre on Transnational, and ICAR), it also seems worth mentioning other big projects such as the International Advisory Board (IAB) financed by the



European Union (1992–1996), the OECD project on the CIS Coordinating Council on Accounting Methodology (1993–1998), the World Bank Project on National Training Foundation (1993–1995), and the major recent European Union projects on accounting and audit reforms. Also, in order to convey a better understanding of audit services in Russia, it bears mentioning that the statistical data on audit firms in Russia, which are given in the book, are limited to the firms that opted to provide such data at a time of a survey.

Notwithstanding the above, the book well serves its purpose of providing an overview of the status of accounting/auditing/taxation at a particular period of time. Combined with previous studies done by the authors, it could also provide a good basis for an analysis of the historical evolution of developments in these areas. As with the previous editions, the discussion is easy to follow; it is logically developed, it offers a number of thought-provoking opinions, and it is written with an evident attempt to be as faithful to the factual material as possible. However, some of the authors' statements could be debated, especially relating to their comparative analysis of Russian accounting regulations with the IFRS, their interpretation of the norms of measurement and of some other accounting principles, and their interpretation of auditing principles.

The chapter on the history of Russian accounting, as well some of the references made throughout the book to the development of Russian accounting thought, could be of particular use to readers. It seems that any reader interested in accounting in general and in Russian accounting in particular could benefit from reading this book, whether the focus of their interest is on a general understanding of the transitional nature of Russian accounting and audit systems, the factual status of regulations in the respective fields in Russia or the authors' interpretations of those regulations, or the educational and historical background of Russian accounting and auditing. The book could be useful for a wider audience interested in understanding the transitional nature of the Russian economy and of the business environment in Russia.

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### **Building Public Trust, the Future of Corporate Reporting**

by Samuel A. DiPiazza Jr. and Robert G. Eccles, John Wiley & Sons, Inc., New York, 2002, xx + 188 pp.

In *Building Public Trust*, Samuel A. DiPiazza, Jr., the CEO of PricewaterhouseCoopers, and Robert G. Eccles, the president of a consulting firm and a "senior fellow" of PricewaterhouseCoopers, provide their prescription for post-Enron/Andersen reform of corporate reporting. Anyone expecting tough medicine is likely to be disappointed. DiPiazza and Eccles deliver a strawberry smoothie—remedies that go down easily and



inoffensively but fail to address the underlying causes of the ailments that have undermined the credibility of both the accounting profession and the corporations that it audits. Beyond acknowledging the public outcry at the many recent audit failures, DiPiazza and Eccles engage in no introspection as to how and why both his own firm and the other major firms managed to dissipate their once-stellar reputations for both competence and integrity.

DiPiazza and Eccles call for a reexamination and strengthening of the "corporate reporting supply chain." This comprises company executives, boards of directors, independent auditors, information distributors, third-party analysts, investors, and other preparers and users of corporate reports. The chain is supported by standard setters, market regulators, and enabling technologies.

The key to restoring public trust, according to DiPiazza and Eccles, is a "spirit of transparency," a "culture of accountability," and "people of integrity." Their framework for achieving corporate transparency is a three-tier model, which they depict as a triangle. Tier one, the base of the triangle, is "global, generally accepted accounting principles." Tier two, the midsection of the triangle, is "industry-based standards," and tier three, the peak of the triangle, is "company-specific information."

DiPiazza and Eccles acknowledge that to reach agreement on global standards, national rule-making authorities and their constituents would have to resolve numerous issues. Foremost among these is whether accounting standards should be based on "rules" or "principles." Where do the authors stand on this question? All standards, they say, should be based on principles. But they must also be supported by rules. The rules, they assert, need not answer every question, and there need not be a rule for every specific instance. The rules should, however, "be consistent with the principles on which they are based, and where particular situations are not covered by specific rules, companies and auditors should look to the substance of the principle" (p. 41). That position certainly seems reasonable, but arguably it is little more than a description of current practices. Obviously, however, it has not worked very well, as both corporations and their auditors have ignored the principles and looked for ways to circumvent the rules.

Another key issue that must be addressed if agreement on global GAAP is to be achieved is whether assets should be reported at cost or market. Here, again, the authors' convictions are underwhelming: "Getting the right balance here will not be easy. The subject is complicated, requiring much study and debate. Reaching a final answer in the very near future may not be a realistic expectation, but as new analytical techniques are developed and as different types of markets merge, what remains difficult to measure at fair value today could be more easily done in the future" (p. 45). For the shareholders of Enron, unfortunately, the future will arrive too late.

The proposed tier two, industry-based standards, will go beyond traditional financial measures. They will require disclosure of the key "value drivers" of the industry, and, inasmuch as these value drivers differ across industries, they will have to be industry specific. For the pharmaceutical industry, for example, the standards might require the disclosure of data relating to market share by therapeutic area, the research and development pipeline, and product focus strategy. For the telecommunications industry, by contrast,

they might be more concerned with network reach, the regulatory environment, and the customer churn rate.

In the light of the obvious limitations of current financial accounting, the case for industry-based standards, as set forth by DiPiazza and Eccles, seems compelling. Indeed, if reliable measures of performance and fiscal health had been developed for the dot-com industry before the 1990s, trillions of dollars of market capitalization might never have been created and subsequently lost.

DiPiazza and Eccles emphasize that, initially at least, the industry participants themselves should develop tier two's industry-based standards, and the standards should be voluntary, not mandatory. Therein lies the unanswered question. Will companies voluntarily disclose information about their operations and activities beyond that which is self-serving? Upon its establishment in 1984, the Governmental Accounting Standards Board set out to develop "service efforts and accomplishments" measures and reporting requirements. By their very nature, governments are more transparent than businesses, and hence it would appear that they would be far more acquiescent toward reporting nonfinancial data than their corporate counterparts. Yet, despite years of research and promotion, the Board has made little progress in convincing state and local governments that they should incorporate such measures in their annual financial reports.

Nevertheless, DiPiazza and Eccles are optimistic that "Truly visionary companies—both those that foresee the competitive advantage in this process as well as those that simply want to do the right thing—will pioneer the use of Tier-Two standards and reporting" (p. 77) and that others will follow in their footsteps. They will do so because either they see it as being in their self-interest or they simply want to do the right thing. One can only hope that the authors are correct, but there is little empirical support for the proposition that good reporting drives out bad. DiPiazza and Eccles cite two apparently successful efforts at developing industry-based standards. In 2000, the Danish Agency for Trade and Industry published *A Guideline for Intellectual Capital Statements*, which, based on the experience of 17 companies, proposed means of measuring and reporting various intangible assets. Also, in response to a Global Reporting Initiative, sponsored by the Coalition for Environmentally Responsible Economies, over 110 companies have begun reporting information on the "economic, environmental, and social dimensions of their activities products, and services" (pp. 73–74). In addition, the authors name several companies that have voluntarily expanded the scope of their reporting. These limited efforts at greater transparency, however, may give rise to more hope than promise.

Tier three, company specific information, will be based on the "real" value drivers that determine effective management. These may include information about strategy, identified risks, risk management, corporate governance, and performance measures. Reporting on these value drivers, say the authors, is the "very meaning of transparency" (p. 82). Yet even the authors suggest that achieving this degree of disclosure is more of a dream than a foreseeable reality.

The authors see technology as the great facilitator of expanded reporting. Obviously, paper is out and the Internet is in. But the Internet alone is not the answer. More data, even if disseminated in real time, are no substitutes for better, more organized information. Enter Extensible Business Reporting Language (XBRL) as the key to next-generation



reporting. It allows reporting entities to “tag” data in such way that individual users can readily locate the information that meets customized criteria, to link the data to other related data, and to authenticate the source and integrity of the data. Further, XBRL can transcend the boundaries of not only the three proposed levels of corporate reporting but also those of individual companies, thereby giving investors analytical tools that reach far beyond the Acrobat-based reports of today.

The new reporting model will add to the responsibilities (and presumably the profitability) of the auditors. Whereas tier-two disclosures would be based on well-defined industry standards, they would be subject to examinations that are similar to those of the tier-one financial statements. Tier-three information, by contrast, is not only company specific but relates to seemingly nonobjective judgments such as strategy, risks, and performance in relation to peers. The authors understandably take a pass on how auditors would deal with this latter type of information, saying only that the auditors will need a great deal of business experience and an ability to exercise professional judgment.

*Building Public Trust* is the quintessential corporate vanity book. The authors devote an entire section to listing 23 “subject matter” experts and linking their contributions to specific chapters. This is in addition to a separate acknowledgment section that thanks another 100-plus project participants. Despite (or because of) all these contributors the book is replete with corporate jargon and hackneyed literary devices (e.g., six reporting objectives all beginning with the letter “c”). In fact, one expression, “ValueReporting” is not only consistent with PricewaterhouseCoopers’ aversion to spaces between words but even comes with its own trademark symbol.

Perhaps the ultimate irony of a book on how the accounting profession can take the initiative to restore public trust is the unusual disclaimer that is included on the copyright page:

The information [in this document] is provided “as is,” with no assurance or guarantee of completeness, accuracy, or timeliness of the information, and without warranty of any kind, express or implied, including but not limited to warranties of performance, merchantability, and fitness for a particular purpose.

Many investors would no doubt contend that such a warning belongs on corporate financial statements in lieu of the standard audit report.

Merely improving current accounting standards and adding new levels of disclosures cannot restore public trust in corporate reporting. Diagnosis is a prerequisite to treatment. In *Building Public Trust*, the authors fail to identify the cause of today’s public reporting malady. Hence, they leave us no reason to believe that their prescription will lead to a cure.

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## Quality Financial Reporting

by Paul B.W. Miller and Paul R. Bahnson, McGraw-Hill, New York, 2002, xxiv+335 pp.

Miller and Bahnson are on a crusade. Although not the first to call for a financial reporting revolution, the passion they bring to this idea and book is strong and unmistakable. The authors believe that it is time for a paradigm shift from the current U.S. reporting system based on generally accepted accounting principles (GAAP) to one they label "Quality Financial Reporting (QFR)": hence, the title of the book. The majority of the book is devoted to explaining QFR, and, equally important, to convincing stakeholders that QFR has much to offer to the world of corporate reporting.

The timing of the book works both for and against the authors. Most of the book was written before the occurrence of some of the largest reporting scandals—although the authors did add a last-minute chapter on Enron—and before the Sarbanes–Oxley Act of 2002 and the related spate of state and federal regulations were passed. As such, at times the book reads as incomplete. However, the good news is that almost everything that the authors recommend is still relevant, and I speculate that they would argue even more so given what transpired since completion of the book.

The book details what is wrong with the current reporting system, arguing that a key problem is an emphasis on supplying more and more information without a critical eye on the benefits of the information. The authors provide numerous examples of this phenomenon. The authors also detail with examples another key structural problem with the current system. In their opinion, the process of setting reporting rules has become extremely politicized, generally advancing the interests of auditors and managers over the needs of users, capital markets, and other key stakeholders. With this backdrop, the authors present their case for QFR.

The fundamental premise of QFR is that auditors, managers, and regulators, among others, should place much greater emphasis on the markets' demand for useful, relevant information. The capital markets' need for information must be reconciled with what GAAP currently requires and what managers currently provide. And furthermore, the authors argue that this needs to happen largely on a voluntary basis. Managers need to recognize that capital markets desire information that is currently not provided by firms. Regulators need to recognize this as well, and they need to work with firms in an attempt to provide this information in a meaningful way. The authors provide many examples of QFR to make their point that high-quality, useful information needs to be the key driver of financial reporting.

Consider one example they provide. Currently, corporations are required to report earnings per share. That is, under current GAAP, you must report an EPS number. The authors recommend that this requirement be eliminated under QFR. However, they recognize that the capital markets might desire such a calculation and thus, under QFR, managers would need to provide enough information to let the markets understand what went into producing the number. Facts about the policies applied to produce the number—both the numerator and the denominator—should be provided by the firms. And furthermore, enough information should be provided under QFR so that sensitivity analysis can be

performed by market analysts and others, if so desired. Dozens of other examples are provided in the book.

As a student of financial reporting for some time, and as one who never thought we would experience a reporting debacle like we just did, I am convinced that the type of dialogue the authors present in this book is not only a worthy one, but a crucial one. The authors want managers to *think* about what they are doing when they put together financial reports, when they interact with analysts and the media, and when they respond to regulators. The authors want the auditors to *think* about their obligations to investors and their role in the capital markets. And the authors want the regulators to *think* about what standards and rules are appropriate, given the debacle we just experienced. If nothing else, the authors should be commended for—one more time—placing this challenge in front of the business community.

The comprehensive nature of the book is especially compelling. The authors do not simply present the concept of QFR as a “done deal.” They discuss its inherent implementation problems. They also discuss what sceptics have said about it or similar reporting schemes proposed in the past. The authors are well known and well respected. Thus, there are no egos to worry about here. The reader has every sense that they simply want all parties involved simply to give QFR fair consideration.

Unfortunately, much of what has been proposed in the book has been proposed in the past—with little progress made to date. In particular, the authors note work by PricewaterhouseCoopers in the 1990s and early 2000s that is similar in content and emphasis. The authors are able to draw on this and other work to present a comprehensive and compelling argument, however. And equally important, as academics, the authors are independent of any stakeholders that may make similar (or opposing) points.

However, as I indicate above, the reality is that little progress has been made to date. Given the proclivity by managers and others to avoid reporting change, it would have been helpful if the authors had suggested a means to the end. How are we going to get to Point A from Point B? Have they seen any successes to date, particularly in countries outside of the United States? What role can the newfound clout of the IASB play in any of this?

Toward the end of the book the authors state, “The practice of QFR is nearly nonexistent at present, and it certainly has received little play in the press. However, the economic forces behind it are very strong and compelling, and sooner or later they will catch up to and then overwhelm the existing paradigm that leads managers to want to starve the markets of information and then feed them GAAP statements that convey no useful information” (p. 329). I hope the authors are correct—and sooner rather than later—but I must say, I’m sceptical as to whether this will happen any time soon.

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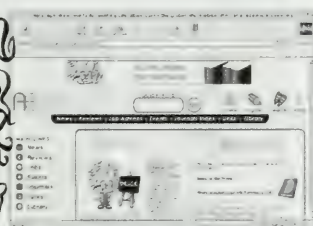
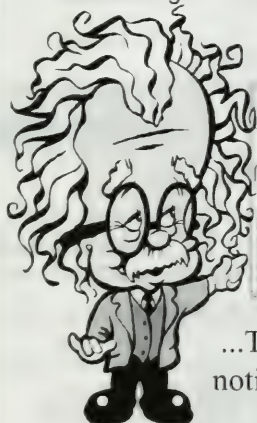
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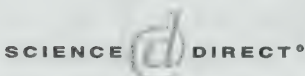
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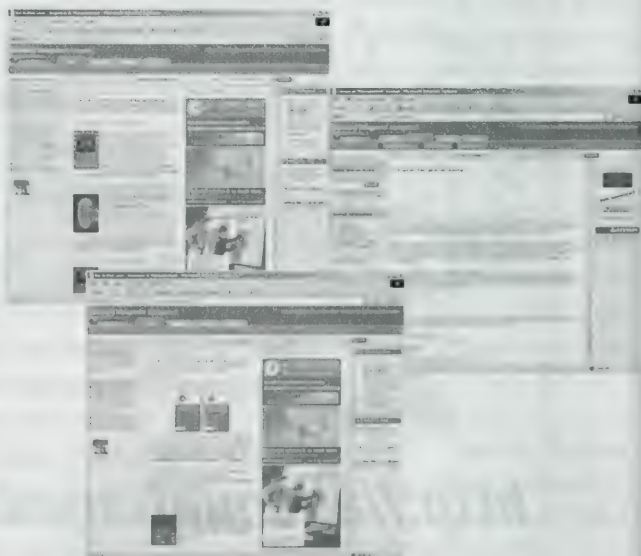
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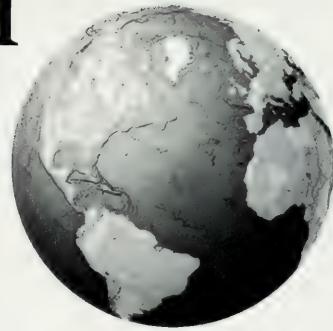
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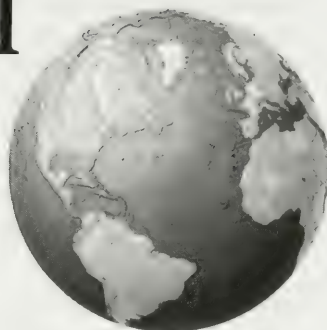
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## Contracts valuation assessment noise and cross-border listing of equities on U.S. and U.K. stock markets<sup>☆</sup>

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### Abstract

This study develops and tests the hypothesis that firms in the home country have capital market incentives to cross-border list on foreign stock exchanges that have similar financial reporting with local generally accepted accounting principles (GAAP). Non-U.S. firms' contracts and the underlying GAAP are based on the home-country culture and institutional climates. This connection with culture and institution makes the local GAAP's assessment of the contracts less spurious relative to foreign GAAP. Ball et al. [J. Account. Econ. 29 (2000) 1] note that contracting with stakeholders in the home markets is based on local GAAP's numbers, while cross-border listing provides settings in which the value relevance of local GAAP-based contracts is assessed based on foreign GAAP. Therefore, foreign investors' assessment of the contracts using foreign stock exchange GAAP or mindset of foreign GAAP is likely to result in an assessment noise, which is value irrelevant. The level of assessment noise depends on the differences between foreign and local GAAP. Because of the valuation implications of the assessment noise, we expect cross-border listing to diminish as the likelihood of assessment noise increases.

As predicted, we find that assessment noise undermines cross-border listing on U.S. stock exchanges. Because U.S. and local GAAPs are based on different cultural and institutional environments, assessment noise arises if U.S. investors use the mindset of U.S. GAAP financial reports to assess local GAAP-based contracts of cross-border firms. The results are robust in the London Stock Exchange in which assessment noise is induced by interpreting local GAAP contracts as if they were based on U.K. GAAP. As expected, the influences of assessment noise on cross-border listings are

<sup>☆</sup> Editor's note: It is a source of sadness to know that Professor R.S. Olusegun Wallace passed away on July 23, 2003. He will be greatly missed.

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more robust in the United States than in the United Kingdom. Our results suggest that harmonization of financial reporting is critical in attenuating the influences of assessment noise on global capital market developments.

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*Keywords:* Local GAAP-based contracts; Investors' assessment noise; Quality of investor protection in each country; Cross-border listing of equities

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## 1. Introduction

Cross-border firms' contracts with stakeholders, including government (via taxes), shareholders (via dividends), managers and workers (via bonuses), and creditors (via interest) are based on home generally accepted accounting principles (GAAP) accounting numbers (Shleifer & Vishny, 1997). These contracts and their values are an important element of the contractual view of the firm (Coase, 1937; Fama & Jensen, 1983; Jensen & Meckling, 1976). The essence of the contractual theory is that firm valuation depends on the contracts and on the home (local) GAAP on which the contracts are based. The home GAAPs are determined jointly by the contracting parties in each country to maximize the value of their contracts (Watts & Zimmerman, 1990). These parties bring into the home GAAP their culture, market orientation, and regulatory climate. Therefore, a cross-border firm's contracts and its home GAAP are jointly influenced by institutional and cultural factors in its country of domicile (Ali & Hwang, 2000; Ball, Kothari, & Robin, 2000; Ndubizu, 2001).

In a contracting framework, a firm is viewed as an assemblage of interacting contracts represented in accounting as assets, liabilities, and equities using the home GAAP. Because of the cultural and institutional connection between contracts and the home GAAP, the value relevance of the contracts depends on the GAAP used to translate the contracts into assets, liabilities, and equities. If the home and U.S. GAAP have different underlying cultural and institutional climates, then the value relevance of the contracts are likely to be assessed spuriously using U.S. GAAP. Consequently, using the mindset of U.S. (foreign) GAAP to assess the value relevance of home GAAP-based contracts is problematic. One obvious problem is that the assessment is more likely to include a noise that is induced by systematic differences in the cultural and institutional climates across countries. Therefore, spuriousness in contract valuation appears to occur when cultural and institutional climates are different between countries and not when they are similar. Cross-border listing on foreign stock exchanges provides settings in which the value relevance of the contracts is arguably assessed, based on foreign GAAP numbers, or as if the contracts are based on foreign GAAP. For example, cross-border firms in United States are required to provide U.S. GAAP accounting numbers in addition to their local GAAP. As Ndubizu (2001) notes, U.S. investors assess the value relevance of home GAAP-based contracts using the mindset of U.S. GAAP. As Barth, Clinch, and Shibano (1999) report, U.S. investors do not possess expertise in the local GAAP of cross-border firms. The lack of expertise suggests that U.S. investors value non-U.S. GAAP-based contracts according to their understanding of the differences between



U.S. and home GAAP. If the differences between non-U.S. and U.S. GAAP are significant, then U.S. investors' assessment of the non-U.S. GAAP-based contracts using the U.S. GAAP mindset increases the spuriousness in contract valuation. We refer to this spuriousness as assessment noise.<sup>1</sup> Therefore, value-maximizing managers have less incentive to cross-border list if assessment noise is significant.<sup>2</sup>

Assessment noise arises when foreign investors interpret a local GAAP as if it were the GAAP of their own country. For example, the London Stock Exchange does not require cross-border firms to comply with U.K. GAAP. However, if U.K. investors interpret the local GAAP accounting numbers of cross-border firms as if they were based on U.K. GAAP, then assessment noise is likely to occur. This noise increases as the differences between local and foreign GAAP or as misinterpretations of local GAAP increase. However, the requirement by the U.S. SEC for cross-border firms to comply with the U.S. GAAP creates in the minds of U.S. investors the belief that the non-U.S. GAAP-based contracts of cross-listed firms are based on U.S. GAAP. Such a mindset would augment assessment noise if cross-border contracts are based on local GAAP, which are different from the U.S. GAAP.

We predict and find that our empirical proxy for assessment noise is inversely related to cross-border listings in U.S. and London Stock Exchanges. This finding arises from a joint test of our hypothesis and proxy for assessment noise. The use of a dummy variable to proxy for assessment noise creates a potential bias against our hypothesis.

We examine also the extent to which cross-border listings by firms on U.S. and London Stock Exchanges are conditioned on the quality of investors' protection in their home countries (measured by the character of legal rules and the quality of law enforcement). Investor protection in the home country has both valuation and listing requirement effects on cross-border listing. For example, investors are likely to rationally discount the value of all firms in the presence of poor investor protection. However, domestic investors cannot perfectly discount the cross-sectional variations in investor protection at home because of

<sup>1</sup> Beaver, McAnally, and Stinson (1997) and Collins, Kothari, Shanken, and Sloan (1994) note that assessment noise is value irrelevant. Assessment noise arises because of the operational dissimilarity between local and foreign GAAPs while determining the value relevance of local GAAP-based contracts. This noise is more significant if the foreign GAAP is perceived by foreign investors to be more stringent than the local GAAP. The noise is less significant if it is perceived by foreign investors to be similar or less stringent than the local GAAP.

<sup>2</sup> Other explanations of cross-border listing include the investor-recognition hypothesis, the segmentation hypothesis, and the liquidity hypothesis. These explanations are based on the assumptions that firms are able to reduce their cost of equity through cross-border listing. Investor-recognition hypothesis suggests that by cross-border listing a firm can increase its investor base and visibility both at home and on the foreign stock exchange and consequently its cost of capital (Alexander, Eun, & Janakiraman, 1988; Baker, Nofsinger, & Weaver, 1999; Errunza & Miller, 1998; Foerster & Karolyi, 1993, 1998; Lau, Diltz, & Apilado, 1994; Miller, 1999; Serra, 1997). Market segmentation arises from barriers to capital flow (such as ownership restrictions, regulatory environment, and information barriers) and increases the risk premiums of firms in the segmented market (see Stulz, 1981). As suggested by Stapleton and Subrahmanyam (1977), cross-border listing can overcome some of the barriers through risk sharing and reduction of the expected return of the cross-border-listed stock. The liquidity hypothesis suggests that a liquidity-risk premium is often imposed on firms that are listed on stock markets with poor liquidity. Therefore, by cross-border listing on a foreign stock exchange with superior liquidity services, firms domiciled in poor liquidity capital markets are able to reduce their liquidity-risk premiums and expected returns.



information asymmetry. This imperfection often results in the undervaluation of firms capable of offering a relatively stronger investor protection in the home country. These firms have valuation incentives to cross-border list on more efficient foreign stock exchanges where investors enjoy stronger legal protection. We describe this phenomenon as the valuation effect. This valuation effect increases cross-border listing by firms with the potential to offer a stronger than usual investor protection compared to other firms in a weak investor-protection country. On the other hand, firms that offer weaker investor protection than usual in their home country are overvalued relative to “stronger investor-protection” firms because of market imperfections and economy-wide discounting of stock market values. Therefore, the firms with “weaker investor protection” have less ability and incentive to cross-border list on foreign stock exchanges that demand “stronger investor protection.”

One main reason that investors provide funds to firms is to receive voting rights in exchange (Shleifer & Vishny, 1997). If managers violate investors’ rights, then the investors have the right to appeal to the courts to enforce their rights. The differences in investor protection around the world stems from the differences in the nature of legal obligations that managers owe to investors and the differences in how courts interpret and enforce these obligations. The lack of legal protection for investors discourages ownership in public shares, which in turn reduces stock value. The results of weak investor protection attenuate the firms’ ability to comply with the cross-border-listing requirements, particularly in the United States. For example, the NYSE requires foreign firms to have at least \$100 million market value and 2.5 million public shares to qualify for cross-border listings. The stringency of cross-border-listing requirements is heightened in a country with weak investor protection, because the situation reduces the number of public shares on issue and their market value. Therefore, weak investor protection decreases cross-border listing and we refer to this effect of weak investor protection on cross-border listings as the “listing requirement effect.”

Because weak investor protection at home can increase cross-border listing via valuation effect and decrease it via listing effect, the net effect of weak investor protection at home on cross-border listing is an interesting empirical issue. Our results suggest that the valuation and listing requirement effects are countervailing.

The remainder of our article is organized as follows. Section 2 relates this study to the relevant literature. Section 3 describes our sample-selection procedure, data, and variables measurement. Section 4 reports our results and Section 5 concludes the article.

## **2. Relevant literature**

### *2.1. Contracts assessment noise*

Contracts are an essential element of the so-called contractual view of the firm developed by Coase (1937), Jensen and Meckling (1976), and Fama and Jensen (1983). The essence of the contractual view is that a firm’s valuation is based on its contracts. A firm’s contracts are determined by the contracting parties’ culture with respect to risk aversion, business practices, and institutional climates (Shleifer & Vishny, 1997). These contracts are translated into assets,

liabilities, and equities using the home-country GAAP. As Ball et al. (2000) note, in the home markets, contracting with stakeholders is based on local GAAP numbers. Shleifer and Vishny (1997) report that incentive contracts around the world are generally based on the home GAAP measure of performance. Therefore, a cross-border firm's contracts and its home GAAP are a function of the same cultural and institutional environments (Ball et al., 2000; Radebaugh & Gray, 1997).

The extant literature on international accounting reports that the legal and business practices of countries are appropriate bases for classifying accounting practices of countries into similar and dissimilar clusters (Mueller, 1967; Nobes, 1984; Radebaugh & Gray, 1977). These studies report that countries that have similar legal and business practices also have similar accounting practices. Gray (1988) and Salter and Niswander (1995) extend the literature and find that countries with similar cultures appear to have similar accounting practices. Taken together, the studies demonstrate that culture and institutional environments are important determinants of accounting practices. When home-country GAAP and contracts of firms are determined by a common set of forces, the home-country GAAP becomes a robust measure of contract value. For example, the interpretation of debt–equity ratios of Japanese firms cannot be done outside the *keiretsu* culture that underlies Japanese contracts and GAAP. Also, measuring Japanese firms' debt–equity ratio using U.S. or U.K. GAAP is at best a misleading analysis because the foreign GAAP derives from a different set of environmental and cultural forces. The use of a foreign GAAP mindset to interpret accounting numbers of a Japanese firm creates a false impression that the underlying contracts are based on the foreign GAAP and that the *keiretsu* culture is not an important factor in assessing the value of Japanese contracts. An assessment noise exists if investors resident in the United States interpret a Japanese firm's debt–equity ratio differently from investors resident in Japan. The Japanese numbers and their interpretations reflect the cultural and institutional components of the debt–equity ratios not captured with the mindset of foreign GAAP. Therefore, assessment noise appears to occur when foreign GAAP are not reflecting the cultural and institutional components of the home GAAP-based contracts.

The Japanese *keiretsu* is an interlocking credit and ownership relation among stakeholders in business settings. For example, the relation between Japanese manufacturers and their suppliers, banks, and trading companies results in short-term debt that is really long term, long-term debt that is in effect equity, and large accounts receivable that are long-term loans to customers (Radebaugh & Gray, 1997). Reporting these transactions using U.S. GAAP is unlikely to capture the cultural context in which the contracts were cast. We refer to this inadequacy of the U.S. GAAP in the valuation of non-U.S. firms as an assessment noise.

The Japanese GAAP require conformity between financial and tax reporting (Ali & Hwang, 2000). This conformity is not required in the United States. The GAAP tax conformity provides incentives to reduce taxes by reporting lower profits. The likelihood of an assessment noise increases if GAAP and tax rules are closely aligned in Japan and loosely connected in the United States. In this setting, the income tax expense or payable reported under Japanese GAAP has more robust cash flows than the same number reported under U.S. GAAP. Reporting lower profits systematically undermines the value relevance of Japanese numbers (Ali & Hwang, 2000). If U.S. investors assess the value relevance of a Japanese firm without considering the



cultural context in which the firm operates, then an assessment noise is likely to arise. The noise captures errors in the valuation of the Japanese firm by U.S. investors using the mindset of U.S. GAAP instead of Japanese GAAP.

The sensitivity of pay-to-performance measures based on the home GAAP is another source of assessment noise (Shleifer & Vishny, 1997). Typically, incentive contracts are based on performance measures that are highly correlated with the quality of managers' decisions. The contracts are influenced by managers' risk aversion. For example, pay-performance measurement sensitivity may not be efficient for risk-averse executives. The level of risk managers are willing to take depends on the home-country culture. Hofstede (1980) points out that the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity is an important element of culture. Strong uncertainty-avoidance societies maintain rigid rules and behavior and are intolerant of deviant behavior. Therefore, managers in strong uncertainty-avoidance societies are more risk-averse relative to managers in other societies. Because of the connection between risk and culture, incentive contracts are likely to vary among countries with systematic differences in the degree to which members of the society feel uncomfortable with uncertainty. We presume that a rational manager in a strong uncertainty-avoidance society has incentive to minimize the risk inherent in pay-performance contracts. By engaging in managerial self-dealing, a manager might reduce the sensitivity of pay-performance measures in the incentive contract. Therefore, managerial self-dealing is likely to be high when uncertainty avoidance is high and managers have pay-performance measures in incentives contracts.

Given the self-dealing opportunities induced by the high uncertainty avoidance, U.S. investors' assessment of the value relevance of the home GAAP-based incentive contracts of firms cross-border listed on U.S. stock exchanges is likely to include an assessment noise. This noise increases to the extent that the culture underlying the incentive contracts is not reflected in the assessment. Typically, the impact of the underlying culture in the valuation of the cross-border-listed firm is captured more by the firm's home GAAP than by foreign GAAP (Ndubizu, 2001).

Ali and Hwang (2000) find that accounting numbers have lower value relevance in the bank-oriented financial system relative to the market system because contracting is based on insider communication (access to company information), while accounting numbers are based on the GAAP. The investor uses GAAP information to assess the value relevance of contracts based on a different information set. Therefore, lower value relevance appears to occur when contracts are based on insider company information and investors' assessments are based on GAAP. We refer to this lower value relevance as a by-product of an assessment noise. This noise is not expected in a market-oriented financial system in which home GAAP provide the basis for both firm contracts and investor assessments.

Ali and Hwang (2000) find systematic differences in the value relevance of public accounting numbers if the degree of tax GAAP conformity, external audit services, and primary purpose of financial reporting are different between the U.S. and the home GAAP regimes. For example, they find that value relevance is lower when tax rules significantly influence financial reporting, external audit services are low, and GAAP are designed to satisfy regulatory and government needs in the home country. Because these conditions do not exist in



the United States, investors are likely to spuriously assess the value relevance of the home-country contracts using U.S. GAAP mindsets. Therefore, lower value relevance appears to occur when assessment noise is high. The poor valuation reduces the incentive to cross-border list equities.

Foreign investors, using foreign GAAP mindsets, assess the value relevance of cross-border firms' contracts spuriously because the local GAAP underlying the contracts are ignored in the assessment. The level of spuriousness increases with the differences between the foreign and local GAAP. The differences increase costs of endowing foreign investors with expertise in local GAAP. Barth et al. (1999) report that foreign investors do not possess expertise in the local GAAP of cross-border firms, but can become experts in local GAAP at a cost that decreases as GAAP harmonization across the countries increases. Therefore, lack of harmonization increases spuriousness in assessing the value of local GAAP-based contracts using foreign GAAP. We refer to this spuriousness in determining the value of local GAAP-based contracts as assessment noise, which is value irrelevant. For example, Ndubizu (2001) notes that if debt agreement is based on a local GAAP debt–equity ratio of 5, then assessment of debt-default risk based on a foreign GAAP debt–equity ratio of 35 is likely to undermine value relevance of the contract. The value relevance of local GAAP debt contracts assessed with the mindsets of foreign GAAP is likely to have assessment noise in spite of the stringency of foreign financial reporting rules. For example, the *keiretsu* in Japan operates in a bank-oriented system that increases debt–equity ratio (Radebaugh & Gray, 1997). Because the *keiretsu* enables a more effective control of firms in the system compared to the inability of banks to control their borrowers in the market-oriented system (Ali & Hwang, 2000), debt-default risk is low in Japan despite a high debt-to-equity ratio. Consequently, foreign investors of a Japanese firm are likely to spuriously assess the firm's contracts if the roles of the *keiretsu* and/or the Japanese financial system are not considered in the assessment.

Shleifer and Vishny (1997) note that managers and investors sign a contract that specifies what the manager does with the funds and how profits are divided between him and investors. Significant differences between foreign and local GAAP's profit for cross-border firms often lead to multiple interpretations of the contract and limit investors' ability to legally enforce the contract. Ball et al. (2000) view accounting income as a common pie to be divided among contracting parties. The value of the pie is determined based on local GAAP. If cross-border-listing forces foreign investors to determine the value of the pie based on foreign GAAP, then the spuriousness in valuing the contracts is likely because foreign GAAP does not reflect the implications of the underlying culture and institution on valuation.

Firms consider the benefits and costs of cross-border listings before the decision to list. Karolyi (1996), Saudagaran (1988), and Saudagaran and Biddle (1992) provide examples of benefits and costs associated with cross-border listings. One potential cost is the valuation irrelevance of assessment noise. We expect assessment noise to decrease value and cross-border listings.

While the differences between local and foreign GAAP are an obvious cause of assessment noise, the same problem also arises if the local GAAP are interpreted as if they were foreign GAAP. For example, London and most European stock exchanges do not require cross-border firms to comply with GAAP other than their home GAAP. The free flow of local GAAP

financial statements across European stock markets would not attenuate assessment noise if foreign investors interpret local GAAP's financial statements (contracts) as if they were based on the GAAP of their own countries. This tendency would create the potential for multiple interpretations of contracts, which would make contract enforcement by an outside court difficult. Therefore, assessment noise increases with the extent of misinterpretation of local GAAP. We view assessment noise as a determinant of cross-border-listing behavior of firms because if foreign investors believe that the foreign GAAP are more stringent than most local GAAP (that is, if they believe that a firm would have reported a worse performance had it used foreign GAAP instead of local GAAP), they would undervalue the firms that do not prepare

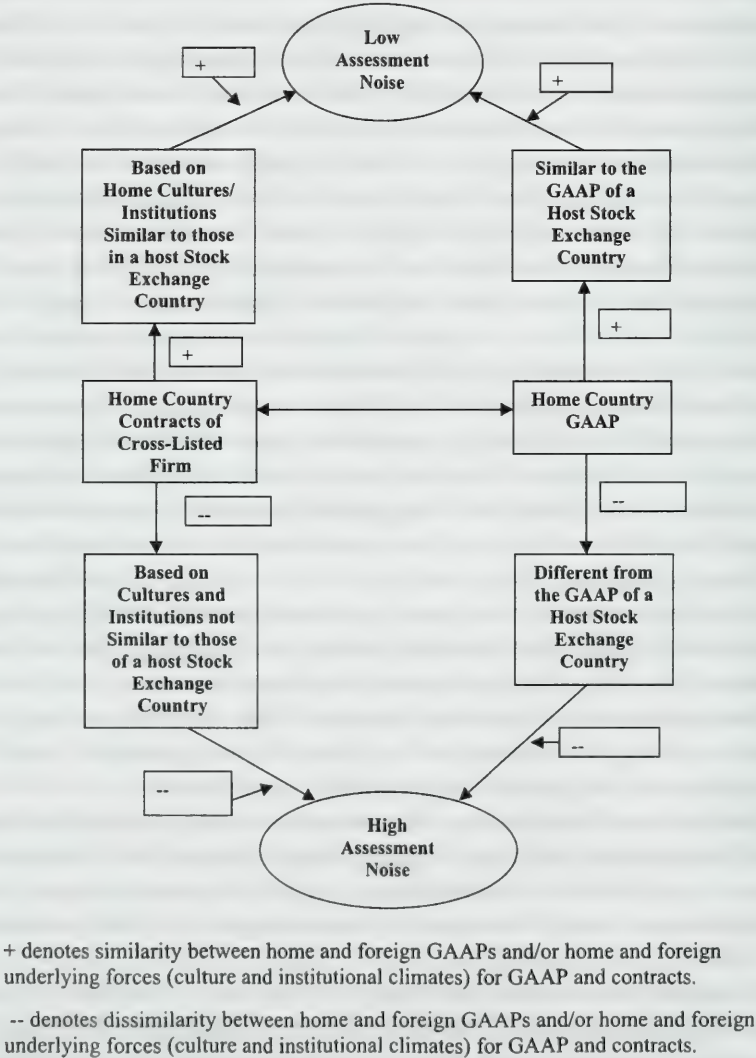


Fig. 1. Relation between assessment noise and home GAAP and contracts of cross-listed firms.



their financial statements using foreign GAAP, leading to assessment noise. Consequently, the belief by U.S. investors that U.S. GAAP accounting is more stringent than non-U.S. GAAP accounting would not benefit a non-U.S. reporting firm. In short, as Saudagaran (1988) and Saudagaran and Biddle (1992) observe, it is more costly for firms domiciled in countries with less stringent reporting requirements relative to the United States and the United Kingdom to cross-border list on the stock exchanges of those countries. Therefore, assessment noise would decrease the incentive of managers of non-U.S. firms to cross-border list on U.S. stock exchanges. Consequently, we hypothesize that high assessment noise in a foreign country decreases the incentive for firms to cross-border list on the stock exchanges of that foreign country. The preceding discussion is encapsulated in Fig. 1.

## 2.2. *Investor protection*

External financing is a contract between the firm as a legal entity and the investors, that gives investors a say in how the firm is governed. The most important legal right shareholders have is the right to vote (Shleifer & Vishny, 1997). This right is violated more flagrantly in countries with weaker legal protections for investors. For example, Shleifer and Vishny (1997) note that Russian managers sometimes threaten employee-shareholders with layoffs unless the employees vote with management. According to Pagano, Panetta, and Zingales (1995), investor protection in Italy is so undeveloped that it substantially retards the flow of funds to firms. In less-developed and transitional economies, investor protection is practically nonexistent (Shleifer & Vishny, 1997). In Russia, poor investor protection leads to substantial diversion of assets by managers and the virtual absence of external funds to firms (Boycko, Shleifer, & Vishny, 1995). Investors need strong legal protection before they would be willing to invest in privately owned firms, including legal restrictions on managerial self-dealing, outright theft, and excessive compensation. Legal restrictions on managers constrain their actions by requiring them to consult with their board of directors before making major decisions.

La Porta, Lopez-De-Silanes, Shleifer, and Vishny (1997) and Shleifer and Vishny (1997) provide evidence that weak investor protection reduces the funds investors are willing to put up *ex ante* to finance the firm. Consistent with this view, we expect weak investor protection to decrease the value of all firms in a country and the number of public shares held by investors (Bartov & Bodnar, 1996; Diamond & Verrecchia, 1991; La Porta et al., 1997). This decrease in the value of all firms is arguably a more severe problem for firms with relatively higher levels of investor protection. Cross-sectional variation in investor protection exists among firms in each country. As suggested earlier, information asymmetry prevents domestic investors from differentiating between firms with strong and weak investor protection. Investor protection is both a countrywide and firm-specific construct. At the firm level, investor protection is a function of a firm's corporate governance, as well as the listing requirements and regulations in the foreign market in which a firm's shares trade. Firms can elect to provide stronger investor protection by implementing corporate-governance mechanisms and shareholder rights that "override" the norms of their home markets. Providing stronger investor protection than the norm is costly for firms because they cannot credibly signal the fact that they provide stronger investor protection than other firms at home. Therefore, local investors indiscriminately



discount all domestic firms as a way of protecting themselves. Because of this imperfection, firms with stronger investor protection and ability to meet the stringent cross-border-listing requirements for foreign investor protection have incentives to cross-border list on U.S. or London stock exchanges to maximize their market value.<sup>3</sup> We refer to this increase in cross-border listing as the valuation effect of weak investor protection at home. While weak investor protection at home is an obvious cause of the valuation effect, the same problem also arises from smallness (inefficiency) of home capital markets (La Porta et al., 1997; Saudagaran, 1988). We controlled for capital market size with total equity market capitalization scaled by gross domestic product in each country.

Weak investor protection at home challenges a firm's ability to comply with cross-border-listing requirements, particularly in the United States. Because weak investor protection at home decreases stock value and home investors' willingness to provide funds, we expect difficulty in meeting cross-border-listing requirements. We refer to this effect of weak investor protection at home as the listing requirement effect. Our investor protection hypothesis is in two parts as follows:

- (a) a valuation effect that increases the incentive for cross-border listing and
- (b) a listing requirement effect that decreases the opportunity for cross-border listing.

The listing requirement and the valuation effects are presumed to occur jointly and move in opposite directions. If the valuation effect dominates, then weak investor protection increases cross-border listing. If neither effect dominates, then weak investor protection will not produce a statistically significant coefficient in the cross-border-listing function. The lack of a significant coefficient may signal that differences in legal investor protection around the world are not important in cross-border listing. This perspective is highly unlikely because evidence in the literature suggests that investor protection affects capital market developments (La Porta et al., 1997; Shleifer & Vishny, 1997). Which effect dominates is an important empirical issue that we address in this article.

### 3. Sample selection and variable measurement

#### 3.1. Sample selection

The number of foreign firms that are cross-listed on major stock exchanges outside their home countries was obtained from the *Foreign Company Offerings and Listings in the U.S. Securities Markets* (Securities and Exchange Commission [SEC], 1994). The SEC document

<sup>3</sup> In addition, Karolyi (1996) reported that the largest contingent of cross-border listing exists on the London Stock Exchange, which comprised 54% of London's average daily turnover of \$5.4 billion (see "Four-Year Surge in ADR and GDR Issues," *Financial Times*, November 10, 1994). The next largest contingent of cross-border listing exists on the U.S. national stock exchanges (NYSE, AMEX, and NASDAQ). We do not investigate other levels of cross-border listing in the United States such as OTC, Pink Sheets, and 144A filings.

contains (1) the name of firms that cross-border listed from each home country and (2) the foreign exchanges in which a firm is cross-border listed. The SEC document provides data on cross-border listing as of December 31, 1994. Over 80% of cross-border listings reported on the SEC document are cross-listed on the U.S. national stock exchanges (NYSE, NASDAQ, and Amex) and the London Stock Exchange.<sup>4</sup> Adhikari and Tondkar (1992), Biddle and Saudagaran (1989), and Saudagaran and Biddle (1995) identify U.S. and London Stock Exchanges as having the most stringent financial reporting regimes.<sup>5</sup> We concentrate our analysis on these two major markets in which assessment noise is expected to be significant for countries that have distinctly different local GAAP. This choice is consistent with our assumption that firms with a philosophy of strong investor protection that are domiciled in a weak investor-protection country have economic incentives to cross-border list in more efficient markets to maximize their market values. The analysis of cross-border listings on the London market used only non-U.K. and non-U.S. firms that cross-listed on the London Stock Exchange and that do not report to the SEC. When we included firms with listings on both the U.K. and U.S. exchanges, the results are qualitatively similar to our reported results.

Firms that cross-border listed on foreign stock exchanges and from countries not included in Douppnik and Salter's (1993) international financial reporting classes are eliminated from our sample. This allows us to use Douppnik and Salter's classification of countries into international financial reporting clusters to identify cross-border listings likely to produce high and low assessment noise as defined in this article. Countries that share a financial reporting cluster with the United States or the United Kingdom are presumed to have relatively less assessment noise compared to countries that belong to any of the other Douppnik and Salter's international financial reporting clusters. For example, firms that cross-border listed on U.S. stock exchanges and belonged to the U.S. financial reporting cluster (U.S.-C2) based on Douppnik and Salter are classified into the low-assessment-noise group, while all other cross-border-listed firms are classified into the high-assessment-noise group. The low-assessment-noise firms have local GAAP that belonged to the same international financial reporting cluster as the United States, while high-assessment-noise firms belonged to a different accounting cluster. Our proxy for assessment noise ignores the variations in financial reporting practices within the high or low groups. This lumping together of seemingly similar countries creates a potential bias against our hypothesis.

Similarly, firms that belonged to the U.K. financial reporting cluster were denoted as low-assessment-noise firms, while other cross-border listings in the London market were classified into the high-assessment-noise group. The assessment noise in the U.K. setting arises from misinterpreting local GAAP-based contracts as if they were based on U.K. GAAP.

<sup>4</sup> Biddle and Saudagaran (1992) conclude that stringent disclosure requirements of foreign stock exchanges inhibit more cross-border listings.

<sup>5</sup> Including Canadian firms in the regression would bias our results in favor of low-assessment-noise firms because the majority of cross-listed firms in the U.S. category are Canadian (296 out of 596). The common factors between the United States and Canada are far greater than just GAAP similarities. Thus, their incentive for cross-border listing on the U.S. stock exchanges might have come from similarities between the two countries other than similar GAAP and the geographical proximity of the two countries.

Table 1  
Sample firms, country of origin, and reporting clusters

Countries of incorporation	Number of firms cross-border listed in U.S. exchanges 1994 <sup>a</sup>	Number of firms cross-border listed in London exchange 1994 <sup>b</sup>	Reporting clusters <sup>c</sup>
Australia	21	4	C1-UK
Canada	296	13	C2-US
Hong Kong	2	1	C1-UK
India	0	6	C1-UK
Ireland	10	56	C1-UK
Israel	51	1	C2-US
Kenya	0	1	C1-UK
Malaysia	0	7	C1-UK
New Zealand	4	1	C1-UK
Nigeria	0	0	C1-UK
Pakistan	0	0	C1-UK
Singapore	1	1	C1-UK
South Africa	1	80	C1-UK
Sri Lanka	0	0	C1-UK
Thailand	0	1	C6-Arb.
United Kingdom	62	—	C1-UK
Zimbabwe	0	3	C1-UK
Argentina	10	1	C4-Latin
Belgium	0	1	C5-Euro
Brazil	1	0	C4-Latin
Chile	15	0	C4-Latin
Colombia	1	0	C4-Latin
Egypt	0	0	C6-Arb.
France	9	5	C5-Euro
Greece	0	0	C4-Latin
Italy	13	0	C5-Euro
Jordan	0	0	C6-Arb.
Mexico	27	0	C4-Latin
Netherlands	15	9	C1-UK
Peru	1	0	C4-Latin
Philippines	3	0	C1-UK
Portugal	2	0	C5-Euro
Spain	8	0	C5-Euro
Uruguay	0	0	C4-Latin
Venezuela	2	0	C2-US
Germany	2	10	C8-German
Japan	19	23	C9-Japan
Switzerland	1	1	C5-Euro
Taiwan	0	3	C1-UK
Denmark	4	4	C7-Nordic
Finland	3	4	C7-Nordic
Norway	5	3	C7-Nordic
Sweden	7	12	C7-Nordic
43	596	251	

<sup>a</sup> 1994 cross-border listing data were obtained from *Foreign Company Offerings and Listings in the U.S. Securities Markets* prepared by the Division of Corporate Finance, U.S. SEC (1994).



Table 1 (continued)

	Original sample		Total sample
	U.S. exchange	London exchange	
Total foreign firms listed	657	326	983
Firms eliminated for lack of data	61	75	136
Final sample of firms	596	251	847

<sup>b</sup> U.S. firms and other foreign firms that report to the SEC and cross-border listed on London Exchange were excluded from the reported results.

<sup>c</sup> The financial reporting cluster (FRC) for each country was based on Douppnik and Salter (1993).

Of the 657 non-U.S. firms that cross-border listed on U.S. stock exchanges, 61 firms were eliminated because they are not included in Douppnik and Salter's (1993) study. The final sample of 596 firms from 43 countries and their financial reporting clusters are presented in Table 1 (column 2). The 296 Canadian firms in this sample were not included in the regression analysis of firms that cross-border listed on the U.S. stock exchanges because of their potential to swamp the results.<sup>6</sup>

The second subsample consists of non-SEC reporting firms that cross-border listed on the London Stock Exchange. By the end of December 1994, there were 326 such firms and 75 of these firms are from countries not included in Douppnik and Salter (1993). The final sample of 251 firms that cross-border listed on the London Stock Exchange and their financial reporting clusters are presented in Table 1 (column 3).

Our choice of a 1994 database in this study needs some explanation. The basis for classifying countries into clusters is Douppnik and Salter's (1993) study. This study is based on Nobes' (1983, 1984) judgmental classification schema. However, Nobes (1998) has criticized his 1983 and 1984 classifications for irrelevance in modern times, given the improvement in the international drive toward harmonization (that is, since 1995). For example, several European firms have started using the U.S. GAAP and/or IASC (now IASB) GAAP as the basis for their financial reports since 1995. Therefore, our database matches well with the basis we used to identify high and low assessment noise.

### 3.2. Variables measurement

The variables used in this study are defined in Table 2. The variables are classified into three groups: (1) assessment noise variable, (2) investor-protection variables, and (3) control variable. Low assessment noise is coded 2, while high assessment noise is coded 1. An alternative coding of 1 and 0 is also used and the results are qualitatively similar.

<sup>6</sup> An additional alternative measure of assessment noise is used and the results are qualitatively similar to those reported in Tables 4–6. The alternative approach combined U.S. and U.K. financial reporting groups into a microfinancial reporting group (Nobes, 1983, 1984). Cross-border listing from a microgroup into U.S. or London stock exchanges is classified as low assessment noise, while other cross-border listings are denoted as high assessment noise.

Table 2  
Variable definition and measurement

Variable definitions	
LAW	Assessment of the law and order tradition in each country based on a scale from 0 to 10, with lower scores for less tradition for law and order. Source: International Country Risk Guide and La Porta et al. (1997).
OSV	One, if the company law or commercial code of each home country requires that ordinary common shares have one vote per share, and zero otherwise. Source: Company Law or Commercial Code of each country and La Porta et al. (1997).
EMS	The 1994 equity market capitalization for each country (measured in dollars) scaled by gross domestic product. Source: <i>Emerging Stock Markets Factbook</i> (IFC, 1998).
MRC	Two, if home-country financial reporting cluster (FRCs) is the same (similar) to the foreign stock exchange in which they are cross-listed (low assessment noise); one otherwise. When an alternative coding of MRC as 1 and 0 was used, the results were qualitatively similar. Source: Douppnik and Salter (1993).
LUS	Number of companies that cross-border listed on the U.S. national stock exchanges as of December 31, 1994, scaled by the number of companies listed on the home country's domestic stock market. Sources: SEC (1994) and <i>Emerging Stock Markets Factbook</i> (IFC, 1998).
LUK	Number of firms that cross-border listed on the London Stock Exchanges as of December 31, 1994, divided by number of listed domestic companies in the home country. The data are obtained from the SEC (1994) and the <i>Emerging Stock Markets Factbook</i> (IFC, 1998).
LUSUK	Pooling LUS and LUK together. The data represent the proportion of firms from each home country that cross-border listed on U.S. and London Stock Exchanges.

The assessment noise variable is denoted as MRC in Tables 2–6.<sup>7</sup> The eight financial reporting clusters identified in Douppnik and Salter's (1993) study and used in the study (excluding C3) are reported in Table 1 (e.g., C1[U.K.], C2[U.S.], C4[Latin], C5[Europe], C6[Hybrid], C7[Nordic], C8[German], and C9[Japan]), including the number of companies from each reporting cluster that cross-border lists on U.S. and London Stock Exchanges.

Two variables are used as proxies for investor legal protection in each home country: (1) law and (2) one-share-one-vote (OSV). The law variable captures the overall quality of legal rules and their enforcement in each country, including country risk. The legal protection for equity holders was captured in terms of the existence of one-share-one-vote right. As Shleifer and Vishny (1997) note, the principal difference in investor protection around the world stems from the difference in the right of shareholders to vote on important corporate matters and on how courts interpret and enforce that right. These variables were, respectively, denoted as

<sup>7</sup> However, as a reviewer observed, our proxies for investor legal protection (LAW and OSU) are country specific (all firms in a country have the same legal protection), although our hypothesis regarding the movement of firms with relatively higher legal protection across national borders is based on *firm-level* legal protection. Note, however, that our sample firms are those that have crossed the borders of their home countries. So, we have eliminated those firms that are probably not capable of offering a relatively higher level of legal protection than those at home. The relationships among firms that cross borders and firms that do not are factored into our proxies LUS, LUK, and LUSUK, described in Table 2.



LAW and OSV in Table 2. The variables were measured in a manner consistent with La Porta et al. (1997).<sup>8</sup>

As Lee (1987) reports, stock-market capitalization is related positively to the value of equities. The home country with a small stock market is more likely to provide little or no facility for the efficient valuation of equities. Consequently, firms in such countries have greater incentive to cross-border list equities in more efficient stock exchanges. We measured the size of the home capital market with the equity-market capitalization scaled by the gross domestic product (see Table 2) denoted as EMS. This variable was used to control for the potential effect of home capital market size on cross-border listings.

## 4. Empirical results

### 4.1. Descriptive statistics and correlation

Panels A and B of Table 3 present the sample mean, standard deviation, and maximum and minimum values for the dependent variables (LUS for U.S. exchange and LUK for London Stock Exchange), independent variables (MRC, LAW, and OSV), and control (EMS) variable. The table reveals considerable dispersion in the values of the variables, as represented by the minimum and maximum values, and the standard deviation. The table also reveals a wide range of variation in the movement from the home-country stock market to foreign stock markets, as measured by the dependent variable (number of cross-border listing of equities scaled by number of firms listed in the home-country market).

Also noteworthy is the proportion of firms from high or low-assessment-noise countries that cross-border listed on U.S. and London Stock Exchanges. Twelve percent of firms from low-assessment-noise countries and 2% of firms from high-assessment-noise countries cross-border listed on the U.S. market. A similar result is noted for the London Stock Exchange, with 8% and 0.8%, respectively, of firms from low- and high-assessment-noise countries cross-border listed on the market. This finding is consistent with our hypothesis that the low assessment noise augments cross-border-listing incentives.

Panels C and D of Table 3 provide Pearson (upper diagonal) and Spearman (lower diagonal) correlations between variables used for the U.S. and London Stock Exchange analyses, respectively. These correlation coefficients indicate the degree to which variation in one variable is related to variation in another. It is quite interesting that independent variables MRC and LAW, in U.S. analyses, are statistically related to the dependent variable (LUS) at the .01 level. We report similar bivariate correlation for the London market in panel D, except that independent variable EMS also is significantly related to the dependent variable (LUK). This result arguably suggests that the movement in cross-border listing on U.S. and London Stock Exchanges is related to changes in the independent

<sup>8</sup> The WLS method rids an equation of heteroskedasticity by dividing it through by a function of the proportionality factor  $Z$  and then reestimating the equation with ordinary least squares.



Table 3  
Summary statistics for the sample

## (A) Descriptive statistics: U.S. exchanges

Variables	<i>n</i>	Mean	Maximum	Minimum	S.D.
LUS	43	0.0264	0.2476	0.0600	0.0473
MRC	43	1.0900	2.0000	1.0000	0.2900
LAW	43	6.9159	10.0000	1.9000	2.6779
OSV	43	0.2300	1.0000	0.0000	0.4200
EMS	43	0.9962	4.4025	0.0217	1.0371
Low assessment countries	3	0.1214	Of the firms listed in those countries where firms that cross-border listed on U.S. stock exchanges are domiciled.		
High assessment countries	40	0.0236	Of the firms listed in those countries where firms that cross-border listed on U.S. stock exchanges are domiciled.		

## (B) Descriptive statistics: London exchange

Variables	<i>N</i>	Mean	Maximum	Minimum	S.D.
LUK	42	0.0282	0.7000	0.0000	0.1086
MRC	42	1.2900	2.0000	1.0000	0.4600
LAW	42	6.8774	10.0000	1.9000	2.6972
OSV	42	0.2300	1.0000	0.0000	0.4300
EMS	42	0.9391	4.4025	0.0217	1.0533
Low-assessment countries	26	0.0812	Of the firms listed in those countries where firms that cross-border listed on the London Stock Exchange are domiciled.		
High-assessment countries	16	0.0084	Of the firms listed in those countries where firms that cross-border listed on the London Stock Exchange are domiciled.		

## Panel C: Correlation analysis: U.S. exchange

	LUS	MRC	LAW	OSV	EMS
LUS		.409 (.006)***	.428 (.004)***	-.218 (.155)	-.108 (.489)
MRC	.416 (.009)***		.105 (.496)	-.171 (.266)	-.090 (.564)
LAW	.400 (.007)***	.126 (.417)		-.134 (.385)	.208 (.180)
OSV	-.231 (.131)	-.171 (.266)	-.168 (.276)		.358 (.018)**
EMS	.170 (.276)	.006 (.967)	.403 (.007)***	.106 (.497)	

## Panel D: Correlation analysis: London exchange

	LUK	MRC	LAW	OSV	EMS
LUK		.301 (.051)**	.486 (.003)***	-.131 (.407)	-.011 (.945)

Table 3 (continued)

Panel D: Correlation analysis: London exchange

	LUK	MRC	LAW	OSV	EMS
MRC	.310 (.045)**		.025 (.873)	.141 (.372)	.506 (.001)***
LAW	.547 (.000)***	.018 (.912)		-.128 (.415)	.194 (.224)
OSV	-.267 (.087)*	.141 (.372)	-.159 (.309)		.379 (.015)**
EMS	.322 (.040)**	.386 (.013)***	.399 (.010)***	.125 (.437)	

Upper diagonal = Pearson; lower diagonal = Spearman.

Correlation coefficients/Prob>|R| under  $H_0$ :  $\text{Rho} = 0/N$ .

P values for two-tailed tests are provided in the parentheses.

\*Significant at the .10 level.

\*\*Significant at the .05 level.

\*\*\*Significant at the .01 level.

variables, in particular, assessment noise (MRC) and legal rules and their enforcement (LAW).

Significant correlation coefficients among independent variables are noted. As such, we presented regression results for the full models as well as the reduced models that excluded one of the correlated independent variables.

#### 4.2. Regression results

The regression analyses were performed after carefully addressing two statistical problems: multicollinearity and heteroskedasticity. The latter problem was addressed in three sequences: first, the variables were scaled in a way that avoided heteroskedasticity. Dependent variables (number of cross-border-listed firms) were deflated with the number of firms that listed on the home market. This reformulation deflates the effect of capital market size (in terms of number of firms) on the movement to cross-list on foreign markets. A similar transformation was made for the control variable EMS. Gross domestic product was used to scale this variable. Second, following the redefinition of variables above, the weighted least squares (WLS), a form of generalized least squares, was used to estimate the models' coefficients. Studenmund and Cassidy (1992) suggest this approach. Finally, we performed White's (1980) test of heteroskedasticity. This test looks for a chi-square value with degrees of freedom equal to the number of slope coefficients. In all estimations, our model's chi-square value is less than the critical chi-square value, suggesting that the null hypothesis of homoskedasticity cannot be rejected. This result indicates that our variable reformulations and choice of regression method are appropriate statistical remedies for heteroskedasticity.

The multicollinearity problem, as discussed earlier, was remedied by dropping one of the correlated variables in the full model. However, the deletion of a multicollinear variable that

Table 4

Weighted regression of number of firms cross-border listed on U.S. national stock exchanges

Models	$B_0$	$B_1$	$B_2$	$B_3$	$B_4$	Adjusted $R^2$
1 Full	-.0543 (-1.66)*	.0592 (2.50)***	.0032 (1.015)	-.0119 (-0.66)	-.0034 (-0.46)	.14
2 Removed $B_4$	-.0566 (-1.82)*	.0599 (2.59)***	.0030 (1.21)	-.0147 (-0.92)		.16
3 Removed $B_3$	-.0608 (-1.95)*	.0612 (2.62)***	.0037 (1.37)		-.0053 (-0.79)	.15
4 Removed $B_3 + B_4$	-.0656 (-2.23)**	.0634 (2.78)***	.0032 (1.33)			.16

$$\text{LUS} = B_0 + B_1 \times \text{MRC} + B_2 \times \text{LAW} + B_3 \times \text{OSV} + B_4 \times \text{EMS} + e$$

Dependent variable is the number of firms from each non-Canadian and non-U.S. country that cross-border listed on the U.S. stock exchanges (NYSE, AMEX, and NASDAQ) deflated by the number of firms in the home-country stock market. The  $t$  statistics for one-tailed tests are noted in parentheses.

EMS = control variable.

\*Significant at the .1 level.

\*\*Significant at the .05 level.

\*\*\*Significant at the .01 level.

theoretically belongs in the model is fairly dangerous because it can lead to specification bias (Studenmund & Cassidy, 1992). We, therefore, estimated both the reduced and the full models. The general conclusions from all four models are consistent.

#### 4.3. Cross-border listings on U.S. exchanges

Table 4 reports the results from the WLS regression of cross-border listings of equities on assessment noise, investor protection and home capital market size for non-Canadian and non-U.S. firms listed on the exchanges. The adjusted  $R^2$  for the four models reported in the table range from .14 to .16. Model 1 is the full model that includes all independent and control variables. Models 2, 3, and 4 are reduced models that excluded multicollinear variables. With and without exclusion of multicollinear variables, the coefficient estimates and the general conclusion appear to be consistent. This suggests that the models' estimation technique is the best linear unbiased estimator when multicollinearity exists. Thus, while the effect of multicollinearity is to increase the variance of the estimated coefficients, our estimates still have the property of minimum variance.<sup>9</sup>

The results in Table 4 show that cross-border listings on U.S. stock exchanges are conditioned on the assessment noise. The assessment noise (MRC) variable represents the spuriousness in investors' valuation of cross-border firms' local GAAP-based contracts using the U.S. GAAP mindset. The coefficient of MRC represents cross-border listings on U.S. stock exchanges gained by having low assessment noise. Therefore, cross-border listing on U.S. stock exchanges decreases with the extent of assessment noise.

<sup>9</sup> See Pearce and Reiter (1985) and Studenmund and Cassidy (1992) for more discussion of multicollinearity.



The results show that assessment noise (MRC) has a positive coefficient and is significantly related to cross-border listing in the U.S. market at the .01 level. This suggests that low assessment noise increases cross-border listings. Similar results are reported for Models 1 to 4 in Table 4, suggesting that multicollinearity is not a serious threat. This result is consistent with the strength of the bivariate relationship between cross-border listings on U.S. exchanges and assessment noise reported in Table 3 (panel C). We find positive and significant bivariate association at the .01 level. The coefficients of the constant terms are statistically significant in all four models. This represents the value of cross-border listing when all the independent variables, the control variable, and the error term are equal to 0.

The coefficients on investor protection variables (LAW or OSV) are not statistically significant at the .05 level. This result suggests that the valuation and listing requirement effects cancel out in our empirical setting. Consequently, neither the valuation effect nor the listing requirement effect dominates cross-border listing of equities in U.S. markets. This finding suggests that firms are equally concerned about the listing-requirement and the valuation effects of poor investor protection on cross-border listings. An alternative interpretation of the lack of significant coefficients is that investor protection around the world is not an important determinant of stock market development around the world. This perspective is not consistent with extant literature. Therefore, our prediction that the listing and valuation effects are countervailing appears to be a more plausible explanation.

#### 4.4. Cross-listing on the London Exchange

Table 5 reports the results from the WLS regression of cross-border listings on assessment noise, investor protection, and home capital market size for the London Stock Exchange. The

Table 5

Weighted regression of number of firms cross-border listed on London stock exchanges

Models	$B_0$	$B_1$	$B_2$	$B_3$	$B_4$	Adjusted $R^2$
1 Full	-.0632 (-2.41)**	.0541 (2.43)**	.0029 (1.29)	-.0177 (-1.11)	.0008 (0.08)	.07
2 Removed $B_4$	-.0591 (-2.35)**	.0496 (2.40)**	.0031 (1.38)	-.0168 (-1.08)		.09
3 Removed $B_3$	-.0571 (-2.22)**	.0480 (2.22)**	.0027 (1.16)		-.0009 (0.09)	.07
4 Relmoved $B_3 + B_4$	-.0538 (-2.18)**	.0445 (2.20)**	.0028 (1.25)			.09

$$LUK = B_0 + B_1 \times MRC + B_2 \times LAW + B_3 \times OSV + B_4 \times EMS + e$$

Dependent variable is the number of firms from each non-U.S. country that cross-border listed on the London Stock Exchange deflated by the number of firms in the home-country stock market. The  $t$  statistics for one-tailed tests are noted in parentheses.

EMS = control variable.

\*\*Significant at the .05 level.

adjusted  $R^2$  for Models 1–4 are .07, .09, .07, and .09, respectively. The coefficients on MRC (assessment noise) for Models 1–4, range from .0445 to .0541, which are statistically significant at the  $P$  value of .05 or better. These findings suggest that, on average, additional cross-border listings could be achieved when home countries have low assessment noise. These findings support our hypothesis that firms tend to cross-border list on an exchange with similar financial reporting rules to attenuate the valuation implications of high assessment noise. The results are similar to those earlier reported for the U.S. stock exchanges. These two results make a rather consistent case that cross-border listings decrease with the extent of assessment noise. GAAP harmonization across the countries is an obvious way to reduce assessment noise. Therefore, our results suggest that GAAP harmonization is an important element in global capital market developments.

#### 4.5. Additional test

To get asymptotic efficiency through pooling the data, we combined cross-border listings on U.S. and London Stock Exchanges in an analysis because, as Studenmund and Cassidy (1992) note, as the sample size gets larger, the estimator is consistent and has the smallest variance of all the consistent estimators. We provide additional regression results on the combined sample in Table 6.

The additional regression results are consistent with the results reported in Tables 4 and 5, respectively, for U.S. and London Stock Exchanges. The coefficients on MRC are positive and statistically significant at a  $P$  value of .05 or better, in all four models. These findings suggest an inverse relationship between the movements of foreign equities into U.S. and London Stock Exchanges and the assessment noise across GAAP. The likelihood of low assessment noise creates valuation incentives for firms to cross-border list on the two major

Table 6  
Weighted regression of number of firms cross-border listed on U.S. and London Stock Exchanges

Models	$B_0$	$B_1$	$B_2$	$B_3$	$B_4$	Adjusted $R^2$
1 Full	-.0548 (-2.01)**	.0531 (2.43)**	.0034 (1.35)	-.0220 (-1.34)	.0022 (0.22)	.07
2 Removed $B_4$	-.0519 (-1.97)**	.0489 (2.38)**	.0039 (1.58)	-.0208 (-1.29)		.07
3 Removed $B_3$	-.0569 (-2.08)**	.0515 (2.35)**	.0036 (1.41)		.0008 (0.07)	.06
4 Removed $B_3 + B_4$	-.0539 (-2.04)**	.0474 (2.30)**	.0039 (1.59)			.07

$$\text{LUSUK} = B_0 + B_1 \times \text{MRC} + B_2 \times \text{LAW} + B_3 \times \text{OSV} + B_4 \times \text{EMS} + e$$

Dependent variable is the number of firms from each non-U.S. and non-U.K. country to cross-border listed on the U.S. stock exchanges (NYSE, AMEX, and NASDAQ) and the London Stock Exchange deflated by the number of firms in the home-country stock market. The  $t$  statistics for one-tailed tests are noted in parentheses.

EMS = control variable.

\*\*Significant at the .05 level.



global stock exchanges. Therefore, our results hold for alternative stock exchanges, regulatory regimes, and pooling of research data to gain asymptotic efficiency.

## 5. Conclusion

We have documented a statistically significant negative association between assessment noise and cross-border listing of equities on U.S. and London stock markets. The results support our hypothesis that firms tend to list on the stock exchanges of countries that have GAAP that are similar to their home country to attenuate the valuation implication of high assessment noise. This noise arises if the value relevance of local GAAP-based contracts is assessed with the mindset of foreign GAAP that are distinctly different and results in what we described in this article, as an “assessment noise,” and considered to be value irrelevant. This noise increases with the extent of the differences between local and foreign GAAP. Therefore, GAAP harmonization across the countries would attenuate assessment noise and increase cross-border listings. Our results lead us to conclude that the harmonization of financial reporting is important in the development of the global capital market, particularly, if assessment noise decreases with the extent of GAAP harmonization across the countries.

We identified two effects of weak investor protection in the home country on cross-border listing of equities: the valuation effect and the listing requirement effect. These effects are the byproducts of the impact of weak investor protection on investment. Consistent with extant literature, we argued that weak investor protection reduces trading liquidity and stock value. The economy-wide undervaluation of equity stocks creates incentives for local firms that have stronger investor protection to cross-border list equity. We described this effect of weak investor protection as the valuation effect, which is expected to result in increased cross-border listings.

Weak trading liquidity, on the other hand, makes it unlikely that firms would meet the listing requirements of major global stock exchanges. These listing requirements include having (1) an appropriate corporate governance or mechanism to protect investors in the home countries, (2) the minimum number of public shares, and (3) minimum market value of public shares. As investor protection decreases, the ability of firms to meet the cross-border listing requirements is reduced. This phenomenon makes cross-border listing of equities less likely for many firms.

Both the valuation and the listing requirement effects occur jointly and move the cross-border listing of equities in an opposite direction. The lack of significant results reported for investor protection in the home country has two plausible interpretations. First, the results could indicate that investor protection is not an important determinant of cross-border listing. This interpretation is highly unlikely in light of extensive evidence in the literature on the importance of investor protection in capital market developments (La Porta et al., 1997; Shleifer & Vishny, 1997). The second interpretation is that the valuation and listing requirement effects cancel out, bringing about a lack of significant coefficient estimates. This interpretation is consistent with the hypothesis that investor protection is an important determinant of cross-border listings. However, more research is needed, particularly at the firm level (such as from the demand for capital and for market presence) to separate the two



effects of poor investor protection, especially because we used countrywide proxies for investor legal protection.

Although the results of our study add to our understanding of how harmonization can create economic value, our study has several limitations. First, the results of our analysis of investor protection in the home countries of cross-listed firms are intriguing but less satisfying because we are unable to separate out the two countervailing effects (valuation and listing requirements) and so do not provide specific prescriptions. Our suggestion that the two effects cancel out because their coefficients are not significant statistically should be treated with caution. The results may arise from an error in the measurement of the two variables.

Second, we used the proportion of firms from each country that cross-border listed on the U.S. or U.K. stock exchanges as the dependent variable in our WLS regressions instead of all publicly traded firms from each sample country. In short, our analysis does not model cross-border-listing decisions of all publicly traded firms in our sample countries as a function of their firm- and country-specific factors. This is an area for future investigation.

Finally, our choice of the 1994 database has implications for our conclusion. For example, our conclusions relate to financial reporting patterns up to 1994, not after. The results should, therefore, be treated as tentative—the study is exploratory; it is a first cut at empirical tests that we hope would generate useful follow-up research.

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## Discussion

# Discussion of “Contracts valuation assessment noise and cross-border listing of equities on U.S. and U.K. stock markets”

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## 1. Introduction

The work of Nduzibu and Wallace (2002) is an ambitious attempt to provide evidence on whether cultural, institutional, economic, and contracting differences affect investors' evaluation of accounting numbers. Policy makers often assume that the quality of financial reports is determined by the quality of the accounting standards to which they conform. For example, one of SEC's criteria for acceptance of IAS was whether IAS's application resulted in transparency, full disclosure, and comparability. As Pownall and Schipper (1999, p. 262) point out, these are qualities of accounting reports rather than of standards themselves, and the SEC's wording presumes a causal link between the standards and accounting reports prepared under those standards. Taken to the extreme, the SEC's perspective implies that requiring foreign firms to present U.S. GAAP numbers is all that is needed to enable U.S. investors to assess foreign firms' financials on an equal footing with those of U.S. firms.

The issue that Nduzibu and Wallace (2002) address is also pertinent to the issue of harmonization. Pownall and Schipper (1999, p. 274) express (in the context of acceptance of IAS) this point well:

The issue to be settled by policy makers is whether applying a single set of rules (IAS) to events/transactions in both common law and code law countries will in fact lead to comparable financial reports—this will not be the case if the economic and institutional

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differences between common law and code law countries induce underlying substantive differences between transactions that appear to be similar in the two types of countries, and thus will be accounted for similarly under IAS. In this situation, the noncomparability will be due to accounting for dissimilar events/transactions as if they were similar.

Nduzibu and Wallace (2002) hypothesize that the greater the differences in the nature of contracts, the greater the risk of spurious evaluation of accounting numbers (which they call “assessment noise”). Convincing evidence of the existence of assessment noise would indeed be a contribution to the accounting literature. As often happens with papers that address ambitious research questions, however, Nduzibu and Wallace fall short of providing such evidence.

In addition, the paper also seeks to disentangle the valuation (signaling benefit to firms of listing in countries with more stringent requirements) and listing effects (difficulty of complying with those stringent requirements). Below, I discuss the paper’s research design and findings and offer thoughts on possible improvements to the research design.

## **2. Research questions and hypotheses**

As mentioned above, I find the existence of assessment noise both plausible and interesting. Nduzibu and Wallace (2002) provide some examples of assessment noise that are helpful. The examples, however, do raise questions. Nduzibu and Wallace argue that GAAP-tax conformity in Japan affects future cash flows. This suggests that one reason for the existence of assessment noise is different levels of persistence of earnings. Earnings persistence could differ even among firms within the same country; therefore, it would be useful to provide evidence on whether these differences among firms across different countries are greater than these differences among firms within the same country.

However, I do not understand the difference between the valuation and listing effects. Because valuation effects are the benefit of signaling and the listing effect is a cost of signaling, I do not see how the two can be separated—the higher the cost of signaling, the fewer the number of firms that would find it profitable to incur those costs, and hence the higher are its benefits. Moreover, signaling will occur only if benefits exceed costs.

## **3. Research design**

Nduzibu and Wallace (2002) perform cross-sectional regressions in which each country constitutes one observation. A limitation of this approach is that the sample size is small. They omit Canada as a special case (because many Canadian firms cross list on U.S. exchanges), which is reasonable. The dependent variable, which seeks to measure the effect of assessment noise, is the proportion of firms in each country cross listing on U.S. exchanges

(and in a separate regression, on the London exchange). I discuss Nduzibu and Wallace's dependent and independent variables below.

### *3.1. Dependent variable*

The dependent variable of Nduzibu and Wallace (2002) is the proportion of publicly listed firms from each country that cross list in the United Kingdom or United States. Thus, they implicitly assume that if assessment noise is low, then more firms from any given country will cross list on foreign exchanges, which is reasonable. Studies consistently find that increased liquidity is an important reason for firms to cross list (see Karolyi, 1996). If assessment noise is high, then foreign investors will refrain from investing in securities and trading them (because they will perceive that they are at an information disadvantage). However, Nduzibu and Wallace provide an alternative explanation for the relation—that assessment noise is valuation irrelevant and this is a cost of cross listing.

### *3.2. Independent variable*

Their independent variable for assessment noise is a dummy that takes value two or one depending on whether the cross-listing firm is domiciled in a country whose accounting standards are or are not in the same cluster as that of the foreign country in which it is cross listing. This assumes that contracts, economic factors, etc., are correlated with accounting clusters. While this is plausible, they provide no direct evidence that this is true. Moreover, accounting clusters are likely correlated with other factors that also affect the cross-listing decision. For example, countries in the same accounting cluster are likely to have greater trade relations, and previous studies (Saudagaran, 1988) find that the percentage of foreign sales is a determinant of cross listing. These factors need to be controlled for.

Besides, it is more common to use zero and one as values of the dummy variable, but all coefficients except the intercept are identical with the approach of Nduzibu and Wallace (2002) so the results are unaffected.

They have two proxies for valuation and listing effects: the law and order tradition in each country and whether firms are required to follow the one-share-one-vote principle.

### *3.3. Control variables*

The only control variable that Nduzibu and Wallace (2002) use is the market capitalization (variables related to the listing and valuation effects can also be interpreted as controls the assessment noise). This assumes that concerns about assessment noise (and possibly the listing and valuation effects) are the only factors that affect firms' decisions to cross list. Previous studies find that sales and the ratio of overseas to local sales also affect the decision to cross list. In addition, language and cultural relations are also likely to affect the cross-listing decision. The lack of control for these other factors is a limitation of Nduzibu and Wallace's study.



#### **4. Results and interpretation**

Nduzibu and Wallace (2002) find that the accounting cluster dummy is significant, i.e., proportionately, more firms from countries in the same accounting cluster as a foreign country (United States or United Kingdom) are likely to cross list there. There are two issues with this conclusion. One, as I pointed out, accounting clusters are possibly correlated with other variables that affect firms' decision to cross list. Second, from the descriptive statistics in Table 1, it appears that a few countries are highly influential in driving the result. Israel is in the U.S. accounting cluster, and 51 Israeli firms cross list in the United States. Nduzibu and Wallace do not report the proportion of firms from these countries, but it is also likely to be high. For cross listing on U.K. exchanges, South Africa (80) and Ireland (56) have the highest numbers of firms and both are in the U.K. accounting cluster.

They find insignificant coefficients on the law and order tradition and dummy for the one-share-one-vote principle and interpret this result as indicating that the valuation and listing effects cancel each other instead of one dominating the other. Apart from the difficulty of disentangling these effects, even in theory, there is the additional problem that insignificance could be caused by either lack of a relationship or by noise. Nduzibu and Wallace (2002) argue that noise is an unlikely explanation because of the findings in previous studies that investor protection is an important determinant of stock market development around the world. However, it is not clear that investor protection is an important determinant of cross listing, and the same observation applies to regressions using each country as one observation.

#### **5. Concluding comments**

An alternative research design is to use each firm as an observation and condition on the decision to cross list. That is, let the sample contain all firms that have cross listed on foreign exchanges and let the dependent variable be whether the destination country is in the same accounting cluster or not. Because the most common cross-listing destinations are the United States and United Kingdom, the sample would then have to be restricted to firms in the U.S. and U.K. accounting clusters (because decisions of firms in countries belonging to other accounting clusters are not diagnostic with respect to the hypothesis). Conditioning on the decision to cross list would control for some omitted variables (such as the need for financing that could affect the decision to cross list). Moreover, the United States and United Kingdom use the same language so that too does not confound the results. However, this approach too suffers from the problem that firms might choose their cross-listing destination based on trade and cultural relations among countries.

Along the same lines, Reese and Weisbach (2001) provide evidence on the signaling effect by examining firms' decision to undertake Level 1 versus Level 2 American Depositary Receipts (ADR) programs. Level 1 ADRs are listed on the OTC Bulletin Board and have minimal SEC compliance requirements. Level 2 ADRs are listed on NYSE, AMEX, or

NASDAQ and have higher compliance requirements, including reconciliation of home country financials with U.S. GAAP on form 20-F.

In summary, Nduzibu and Wallace (2002) address an interesting research question, but the issues I discussed above limit the usefulness of their contribution.

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## Reply

# Reply to the discussion on “Contracts valuation assessment noise and cross-border listing of equities on U.S. and U.K. stock markets”

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We would like to thank Kallapur (2003) for taking time to provide valuable and constructive perspectives on our paper (Ndubizu & Wallace, 2003). He has added a significant contribution to the field of cross-border listing of equities on U.S. and U.K. stock markets that we hope will not be overlooked because of its location as an appendage to our paper. He has provided us with additional insights as well as suggestions for possible extension for future research. Kallapur has engaged in an interactive dialogue with our paper by applying exceptional focus to some (though not all) of the ideas in our paper. He contemplated the meanings behind some of them and reflected upon the issues that we have not addressed and wondered why they were omitted. We however believe that some of his reflections suggest an insufficient rumination over some of the text he finds troublesome. While he agrees that our research is timely and addresses an interesting question that is pertinent to the issue of harmonization, he raises several concerns with our paper, which we discuss below.

While admitting that our assessment noise construct is both plausible and interesting, Kallapur (2003) suggests that we do not provide sufficient evidence for the existence of assessment noise, which is the main thrust of our paper. Kallapur also suggests that one reason for the existence of assessment noise is the difference in the earnings persistence of firms and points out that earnings persistence could also differ among firms within the same country and we agree. He therefore suggests that we should have provided evidence on whether the differences in earnings persistence among firms across different countries are greater than similar differences among firms within the same country. However, our definition

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of “assessment noise” refers to the consequence of investors using the mindset of U.S. GAAP to interpret financial statements prepared by cross-border firms, not to the persistence of the earnings of cross-border firms. We believe that we have provided sufficient examples to enable a reader to understand the meaning of our assessment noise construct. Assessment noise arises when investors use a wrong premise to interpret financial statements of cross-border-listed companies. We suggest that foreign investors, using the mindsets of their home GAAP, would spuriously assess the value relevance of cross-border firms’ contracts because they often ignore the GAAP of the countries in which the cross-border firms are domiciled. The level of spuriousness would increase with the differences between foreign and home GAAPs. The differences would increase the costs of endowing foreign investors with expertise in the GAAP of other countries. As Barth, Clinch, and Shibano (1999) suggest, foreign investors who do not possess expertise in local GAAP of cross-border firms can become experts in local GAAP at a cost that decreases with the increase of GAAP harmonization across countries.

Kallapur (2003) also suggests that we failed to sufficiently disentangle valuation effects (which he describes as providing signaling benefits to firms listing in countries with more stringent requirements) from listing effects (which he describes as the cost of signaling arising from the difficulty of complying with those stringent requirements). We view this attempt to make sense of our use of the investor protection construct as misleading. Both valuation effects and listing effects are reactions of firms to the investor protection in their countries. Firms’ reactions to the investor protection in their countries are viewed in our paper as a function of their corporate governance and their ability to comply with the listing requirements and regulations in the foreign market in which their shares are to be traded. We suggest in our paper that only a few firms in a country with weak investor protection can cross-border list because of valuation effects. These are firms that are in a position to provide stronger investor protection by implementing corporate governance and shareholder rights that are superior to the norms in their home markets. We also suggest that such a provision is costly for those firms because they cannot credibly signal the fact that they are providing stronger investor protection than other firms at home. We explain, in footnote 3, why firms with relatively stronger investor protection are valued higher on foreign stock exchanges than on home stock exchanges. Our explanation recognizes that cross-sectional variation in firm-specific investor protection exists within each country. This is because information asymmetry prevents domestic investor from differentiating between strong and weak investor protection firms. Therefore, investor protection is both a countrywide and firm-specific construct. Using the countrywide construct, we suggest that weak investor protection affects the liquidity of a local stock market and the ability of local firms to raise equity capital at a level sufficient to provide entrée of their shares into the foreign stock market—this is what we describe in our paper as the listing effect and this decreases the opportunity for cross-border listing by firms. On the other hand, valuation effect refers to the firm-specific characteristics that increase the incentive for cross-border listing.

Kallapur (2003) also expresses concern over our use of a small sample size. This is inevitable. Any study, like our own, making use of macrolevel social units of analysis, such as communities, nation-states, or countries, is confronted with a major obstacle—the relatively



limited number of cases that can be treated. Our paper reports on a comparative investigation of cross-border listing data from 43 countries partitioned into several clusters, which yield as great variation as possible in cultural, social, economic, and political contexts. If the relationships between firms' behavior and their orientation toward cross-border listing are similar in these different contexts, then the factors that differentiate between the contexts can be regarded as irrelevant to the relationships. As a result, we used the comparative strategy known as the "most different systems design" (Przeworski & Tenne, 1970). If, on the other hand, the relationships should vary between the different contexts, further analysis of the country differences may clarify the causes of the different relationships.

Kallapur (2003) also suggests that we should have used an alternative research design in which each firm is an observation instead of each country. In our study, we consider investors as central and presume that their skills and world views have a substantial impact on the behaviors of firms that want their equities to be traded on foreign stock exchanges. We believe that macrocollectivities and institutions (investor protection and assessment noise) derive their sustenance from the investors they embrace. Therefore, we expect that any behavior at the microlevel (i.e., at the firm level) would find expression in the aggregated dynamics that give shape and directions to global movement and migration of firms' equities. In our study, we tested macroeconomic and macrolegal indicators, not microlevel or individual firm indicators. On this basis, Kallapur's questions about our neglect of firm-specific characteristics seem irrelevant. The main hypothesis we tested is that firms' intent on cross-border listing tends to adopt the financial reporting values of the host stock market as an instrumental response to facilitate social integration. Our hypothesis suggests that firms from the same cluster as the host stock exchange would find it easier to cross-border list on that stock exchange than firms from a different cluster, although host stock exchanges often express the desire for firms from all clusters to cross-border list on their exchanges. Our partitioning of the selected countries into clusters permits us to "forget," to a certain degree, those contextual variables that would make comparison difficult. We sought the most stable and invariant factors amid a profusion of forms and events—so we looked more for similarities than for differences within clusters.

Kallapur (2003) also questions our failure to control for other factors that are likely to affect cross-border-listing decisions by firms (such as firm-specific factors like trade relations, percentage of sales that is foreign, and country-specific factors like language and cultural relations). In the preceding text, we explained that our interest is on countrywide factors, not firm-specific factors. This leaves us with the need to explain why national culture and language are not factored into our study. There are several reasons for these omissions. First, our countrywide factors of financial-reporting clusters and investor protection are "cultures writ large." They consist of common objective elements such as language, history, religion, customs, and institutions and, by their subjective self-identification, of people and firms. Second, these constructs and their proxies are better empirical indicants of the contexts in which firms that cross-border list are domiciled than the national culture indexes, such as those of Hofstede (1980) that are outdated and treat multicultural contexts as monocultural. Take for example, the case of Israel, which is a young immigrant society. The bulk of its Jewish population is made up of immigrants. The immigrants originate from many parts of



the world and represent some of the major cultural zones. Nearly one half migrated from Moslem countries in the Middle East (e.g., Iraq, Yemen, and Iran) and North Africa (Morocco, Algeria, and Tunisia). Many are from Eastern and Central Europe, including ex-communist countries that belong to Orthodox countries (e.g., Poland and Hungary). Many arrived from Protestant countries (e.g., German and Holland), southern Catholic countries (e.g., France and Italy), or English-speaking countries (e.g., United Kingdom and the United States). Although they share a common ethnic identity, their historical background and cultural heterogeneity and the recency of their settlement suggest that the Israeli society cannot be assigned to any specific cultural zone. Another example is South Africa, with a highly heterogeneous population—Blacks, Whites, Indians, and Coloreds—each with its own unique cultural orientations and all gradually moving toward cultural convergence given the intense ongoing restructuring of the political, social, and economic spheres of the South African society.

Third, cross-national comparison would neither guarantee the validity of our induced conclusions, nor will the context of the compared countries be sufficiently similar to permit us to consider as null the influence of the environment—we are not in a position to validly exclude from our conclusion those contextual variables that cannot be kept constant. What we seek is not a paralyzing perfection, but the most satisfying approximation to it.

Finally, Kallapur (2003) suggests that a few countries are highly influential in driving our results because the number of firms indicated in our Table 1 as cross-border listing from Israel on U.S. stock exchanges (51) and from South Africa (80) and Ireland (56) on London stock exchange seems large relative to those for other countries. Kallapur's suggestion that firms from these countries may swamp our analysis has arisen because we did not report the proportion of firms from each of the 43 countries in our study. When the number of firms that cross-border list are converted into proportion of publicly listed firms in each country, the numbers become fractions and this translation removes the apparent skewness of the distribution of the number of firms that cross-border listed from each country. On the translation, the proportion of publicly listed firms that cross-border list on U.S. stock exchanges from Israel is less than 4%. The figures for South Africa and Ireland on the London stock exchange are 2% and 3.5%, respectively.

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# Pricing and supplier concentration in the private client segment of the audit market: Market power or competition?

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## Abstract

This study differs from prior audit-pricing studies as (1) it focuses on the issue of price competition in the (small) private client segment of the audit market and (2) addresses the questions of whether and how the audit-pricing model changed in that market between 1989 and 1997. Given the significant increases in market concentration and two big audit firm mergers in that period, we try to assess whether price competition (market power) has increased (decreased) or decreased (increased). We use Belgian data on privately owned companies from 1989 and 1997 for our analyses. We find that audit fees are significantly associated with the incumbent auditor's market share both in 1989 and 1997. Our results are in line with prior studies on public client samples and hence do not support prior assumptions that there are no price premia charged by large auditors in the small client segment of the audit market. As to the evolution of audit pricing in the private client segment of the Belgian audit market between 1989 and 1997, we find that the impact of various audit fee determinants changed significantly and report evidence supportive of increased price competition.

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*Keywords:* Price competition; Audit pricing; Market concentration; Private companies

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## 1. Introduction

Many studies have addressed audit-pricing issues in the past. Early audit-pricing research was inspired by concerns about price competition in the audit market as a result of the high levels of supplier concentration. The question whether audit markets are price competitive remained valid in the nineties, especially as the consolidation trend between the big

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international accounting firms had continued. The vast majority of audit-pricing studies focuses on the public client segment of the audit market and reports evidence consistent with price competition in that market. Price premia are reported for Big 8/6 firms, but these are explained as evidence supportive of quality-differentiated services rather than arguments against price competition.

This study differs from prior studies and contributes to audit-pricing research in at least two respects. First, we focus on the question of price competition in the (small) private client segment of the audit market. In prior studies, one often assumes that price competition prevails in the small client segment of the audit market because of its low concentration (see, for example, Simunic, 1980). However, to our knowledge, this assumption has never been directly tested. Second, given the significant increases in market concentration and mergers<sup>1</sup> of two big audit firms in the late eighties, we address the question whether and how the audit-pricing model changed in that market during the last decade of the former millennium. The mergers and the increase in concentration may have changed the market position and power of the players in the audit market, and there is a general concern that the degree of competition may have dropped. However, audit practitioners typically claim that the increased concentration has increased rather than decreased price competition. Prior audit-pricing studies based on samples of public clients indeed report evidence that is supportive of increased price competition. Menon and Williams (2001) report flat (and not increased) audit fees during the nineties. Pearson and Trompeter (1994) report a negative association between audit fees and the level of supplier concentration. The validity of the latter study is however limited, as only the insurance industry was included in the sample. Furthermore, the sample only covered a relatively short time period in which concentration ratios exhibited only limited variability. In our study, we report a significant increase in concentration in the Belgian audit market between 1989 and 1997. We then assess whether the audit-pricing model changed over that time period and whether detected changes are consistent with increased price competition or increased market power.

We use Belgian data from 1989 and 1997 for our analyses. The vast majority of the clients in the Belgian audit market are privately owned companies with an average size (namely about two billion Belgian francs or 50 million euro) that is small compared to other industrialized countries. We chose to adopt these 2 years because 1989 data are still unaffected by the two megamergers that took place in that year, and 1997 data should already fully incorporate their effect. We propose a new surrogate to assess market concentration based on personnel cost data per audit firm. To this end, we collected all financial statements submitted by Belgian audit firms to the Belgian National Bank in those 2 years. We adopt a measure proposed in the literature of industrial organization (see Parker, 1991) to assess whether supplier concentration is significant in the Belgian audit market and find that this is not the case, both in 1989 and 1997. We do however find that the increase in concentration between 1989 and 1997 is significant.

<sup>1</sup> Those mergers were between Deloitte Haskins and Sells and Touche Ross into Deloitte and Touche, and between Arthur Young and Ernst and Whinney into Ernst and Young.



To address our research questions, namely, whether (1) audit pricing is competitive in the private client segment of the Belgian audit market and (2) the audit-pricing model changed between 1989 and 1997, we had to collect audit fee information through surveys, as fees are not publicly disclosed in Belgium. We find that audit fees are significantly associated with the incumbent auditor's market share both in 1989 and 1997. Our results are in line with prior studies on public client samples and hence do not support prior assumptions that there are no price premia charged in the small (nonconcentrated) client segment of the audit market. We also find evidence supportive of an increase in price competition in 1997 compared to 1989. In particular, we tested whether the impact of various audit fee determinants changed significantly between 1989 and 1997.

The remainder of this paper is organized as follows. In the next section, we provide a literature review. In Section 3, we describe those characteristics of the Belgian audit environment that are relevant to this study. We also provide evidence on supplier concentration in the Belgian audit market and assess its significance. We then specify our research questions in Section 4. In Section 5, we define the audit fee model that we will adopt and describe our research design. We then discuss our sample selection procedures and the main results of our analysis in Section 6. Finally, we present our conclusions in Section 7.

## 2. Literature review

### 2.1. Audit market concentration studies

Ample empirical evidence has been published on audit market concentration.<sup>2</sup> These studies were inspired by concerns about the possible anticompetitive effect of the presence of a few dominant players (i.e., the Big 8/6 accounting firms) in the audit market and the mergers between some of the Big 8 firms. Early studies stem from the public client segment of the U.S. audit market and include Dopuch and Simunic (1980); Rhode, Whitsell, and Kelsey (1974); Schiff and Fried (1976), and Zeff and Fossum (1967). Concentration ratios reported in these studies range (depending on the surrogate used) from about 65–70% for the CR4 to as high as 95–98% for the CR8. Several studies questioned the contention that high market concentration was the result of lack of competition and report (sometimes weak) evidence supportive of price competition (see, for example, Campbell & McNiel, 1985; Danos & Eichenseher, 1986; Dopuch & Simunic, 1980).

The megamergers between some of the largest Big 8 firms in 1989 were a reason why audit market concentration studies have continued in the nineties. Again, there was a great concern that possible monopoly power and/or loss of objectivity and independence would result where only a few firms dominated the audit market. Minyard and Tabor (1991) and Tonge and Wootton (1991) examined the proforma impact of the Big 8 mergers of 1989. Both

<sup>2</sup> We refer to Table 2 for a selected overview of the level of the concentration ratios reported in prior research. Note that this table only includes evidence between 1988 and 1997, as this is relevant to the period analyzed in this paper.

studies predicted that the mergers would have little impact on competition and could actually increase competition in the audit industry. Wootton, Tonge, and Wolk (1994) even indicate that although those mergers resulted in increased concentration ratios, the analysis suggests that the industry is becoming better balanced in competition within the group of big audit firms. An important consequence is also the much bigger gap between the first tier audit firms and the other (smaller) audit firms in the market.

As to European evidence, audit market concentration studies were performed in various national audit markets (see, for example, Beattie & Fearnley, 1994; Buijink & Maijoor, 1993; Christiansen & Loft, 1992; Corona Romero, Garcia Benau, Ruiz Barbadillo, & Vico Martinez, 1995; Loft & Sjöfors, 1993; Marten, 1996; Moizer & Turley, 1987; Pong, 1999; Weets & Jegers, 1997). Although the level of market concentration differs between European countries, an increase in the eighties and nineties is apparent in most countries. Interesting is that some studies report a significant difference in Big 6 market shares depending on the client segment. For example, Pong (1999) reports for the UK market that the Big 6 market share ranged from about 50% in the small-size client segment to 98% in the largest client segment of the UK audit market. As to Belgium, Weets and Jegers (1997) report that concentration ratios are lower than in most other industrialized countries, but also that there is an increasing trend in Big 8/6 market shares in the Belgian audit market during the 1980s and 1990s. A further discussion of audit market concentration in Belgium as compared to other countries follows in the next section (see also Tables 1 and 2).

## *2.2. Audit fee studies*

Based on the empirical evidence of high supplier concentration in the audit market, early audit fee research was mainly inspired by concerns about price competition in the audit market. In his seminal paper, Simunic (1980) proposed a model of audit pricing to test for competition in the U.S. audit industry. He assumed that price competition prevails in the small auditee market segment because of the lower supplier concentration in this segment, but that the large auditee market may not be competitive because of Big 8 concentration. By comparing pricing in the two market segments, Simunic draws conclusions about competition in the audit market. From the results of his study, the hypothesis that the audit market is competitive could not be rejected, as no significant premia were found for Big 8 firms in the large client segment of the market. Many subsequent studies adopted a similar approach to study audit pricing (see, for example, Defond, Francis, & Wong, 2000; Ettredge & Greenberg, 1990; Francis, 1984; Francis & Simon, 1987; Lee, 1996; Palmrose, 1986a, 1986b; Pong & Whittington, 1994). Unlike Simunic, most studies report a significant Big 8/6 audit fee premium and explain this finding by product differentiation by the Big 8/6 and not as a result of Big 8/6 market power. The different findings, as to the Big 8/6 premia, are explained by size differences in the client samples under investigation.

Later, audit fee studies (see, for example, Craswell, Francis, & Taylor, 1995; Deis & Giroux, 1996; Defond et al., 2000; Pearson & Trompeter, 1994) were mainly concerned with specific determinants of audit fees, such as the effect of auditor switching, auditor concentration, and auditor industry specialization.



Fees studies have also been done outside the United States. For example, Craswell et al. (1995), Francis (1984), and Francis and Stokes (1986) report evidence on the Australian market; Chan, Ezzamel, and Gwilliam (1993), Pong and Whittington (1994), and Taffler and Ramalinggam (1982) on the UK market; Firth (1985) on the New Zealand market; Anderson and Zeghal (1994) on the Canadian market; and Chung and Daryl Lindsay (1988), Defond et al. (2000), Gul (1999), and Lee (1996) on the Hong Kong market. Overall, we can conclude that (1) a fairly robust audit fee model seems to explain 50–70% of audit fee variations across the world, including auditee size, client complexity, and riskiness as explanatory variables; and (2) significant price premia for Big 5/6 firms are observed worldwide. Note that almost all prior audit fee studies used samples of public clients.

### *2.3. Long-term trends in audit fees*

In a recent study, Menon and Williams (2001) report evidence on long-term trends in audit fees in the U.S. audit market. They find that fees increased in the 1980s but stayed flat in the 1990s. In particular, a significant increase in fees is noted in 1988, which the authors attribute to an expansion of audit effort as a response to the issuance of the expectations-gap standards. The evidence also indicates a short-term but not a long-term effect of the Big 8 mergers in 1989 on audit pricing. Some changes in the audit fee model over the sample period (1980–1997) are also documented. For example, the magnitude of the coefficients for accounts receivable and inventory has declined, which can be attributed to audit productivity improvements. Important to note is that the sample in the study was restricted to clients of Big 6 firms that voluntarily disclosed audit fees in the period 1980–1997. This implies that no evidence is obtained on the non-Big 6 client segment of the market or on the privately held firm segment of the audit market.

### *2.4. Audit pricing and supplier concentration*

Although both audit fee and supplier concentration studies were inspired by concerns about competition in the audit market as a result of increased supplier concentration, both literatures have developed quite separately and the relationship between supplier concentration and audit pricing has hardly been tested directly. An exception is the study by Pearson and Trompeter (1994). They investigate the effect of supplier concentration on audit fees for the life and health insurance and property and casualty insurance industries in the United States over a 4-year period (namely, 1983–1986). They found that concentration is negatively associated with fees, suggesting that higher levels of concentration be related to higher levels of price competition. This finding is interesting as it does not confirm with prior concerns that supplier concentration may increase market power of Big 8/6 firms and hence affect audit pricing in a positive way. There are however two limitations to this study. First, as only two U.S. industries are examined, the external validity of the study may be limited. Second, the sample period covers a relatively short time period during which the concentration ratios exhibited only limited variability in each industry. In our study, we try to address some of these limitations and investigate (for the private client



Table 1

Supplier concentration ratios in the Belgian audit market 1989–1997

	1989	1990	1991	1992	1993	1994	1995	1997
<i>Panel A: CR 4</i>								
Personnel cost per audit firm <sup>a</sup>	47%							63%
No. of qualified professionals per audit firm <sup>b</sup>	22%							27%
No. of qualified professionals per audit firm (WJ 1997) <sup>b</sup>	21%	22%	31%	28%	28%	26%	26%	n.a.
Client sales (WJ 1997) <sup>c</sup>	41%	43%	52%	53%	56%	56%	n.a.	n.a.
Square root of client sales (WJ 1997) <sup>c</sup>	19%	19%	23%	21%	23%	24%	n.a.	n.a.
Total assets (WJ 1997) <sup>c</sup>	45%	48%	57%	58%	60%	61%	n.a.	n.a.
Number of clients (WJ 1997) <sup>c</sup>	33%	34%	39%	40%	42%	42%	n.a.	n.a.
<i>Panel B: CR 6</i>								
Personnel cost per audit firm <sup>a</sup>	60%							77%
No. of qualified professionals per audit firm <sup>b</sup>	27%							32%
No. of qualified professionals per audit firm (WJ 1997) <sup>b</sup>	25%	27%	35%	33%	33%	31%	31%	n.a.
Client sales (WJ 1997) <sup>c</sup>	53%	54%	64%	66%	69%	70%	n.a.	n.a.
Square root of client sales (WJ 1997) <sup>c</sup>	25%	26%	30%	29%	31%	31%	n.a.	n.a.
Total assets (WJ 1997) <sup>c</sup>	56%	61%	69%	71%	74%	74%	n.a.	n.a.
Number of clients (WJ 1997) <sup>c</sup>	43%	45%	53%	54%	56%	56%	n.a.	n.a.
<i>Panel C: CR 8</i>								
Personnel cost per audit firm <sup>a</sup>	68%							80%
No. of qualified professionals per audit firm <sup>b</sup>	30%							36%
No. of qualified professionals per audit firm (WJ 1997) <sup>b</sup>	29%	31%	38%	36%	36%	35%	34%	n.a.
Client sales (WJ 1997) <sup>c</sup>	59%	62%	69%	70%	73%	75%	n.a.	n.a.
Square root of client sales (WJ 1997) <sup>c</sup>	30%	31%	34%	33%	35%	36%	n.a.	n.a.
Total assets (WJ 1997) <sup>c</sup>	65%	71%	76%	77%	80%	81%	n.a.	n.a.
Number of clients (WJ 1997) <sup>c</sup>	51%	53%	58%	60%	62%	62%	n.a.	n.a.
<i>Panel D: Herfindahl index (HHI)</i>								
Personnel cost per audit firm <sup>a</sup>	.0768							.1184
No. of qualified professionals per audit firm <sup>b</sup>	.0175							.0228
No. of qualified professionals per audit firm (WJ 1997) <sup>b</sup>	.0170	.0190	.3000	.0250	.0250	.0230	.0210	n.a.
Client sales (WJ 1997) <sup>c</sup>	.0590	.0620	.0840	.0860	.0920	.0940	n.a.	n.a.
Square root of client sales (WJ 1997) <sup>c</sup>	.0180	.0190	.0220	.0210	.0220	.0230	n.a.	n.a.
Total assets (WJ 1997) <sup>c</sup>	.0710	.0800	.1080	.1140	.1160	.1180	n.a.	n.a.
Number of clients (WJ 1997) <sup>c</sup>	.0410	.0430	.0540	.0560	.0590	.0600	n.a.	n.a.

<sup>a</sup> The concentration ratios based on personnel cost are based on all financial statements submitted by audit firms to the Belgian National Bank.

<sup>b</sup> The concentration ratios based on the number of qualified professionals are based on the membership lists of the Belgian Institute of auditors (IBR/IRE). Per audit firm, we traced the number of members that are associated with it. Note that the total population is included.

<sup>c</sup> The concentration ratios in Weets and Jegers (1997) were calculated using the financial statements of the 1300 largest Belgian companies that were publicly available over the period 1989–1994.

Table 2

Evidence on concentration ratios in European countries

BASIS:	CR4	CR6	CR8	HHI
<i>No. of qualified professionals per audit firm</i>				
Netherlands 1990, entire population— Buijink and Majoor (1993)	59%	n.a.	n.a.	.09
Belgium 1990, entire population— Weets and Jegers (1997)	22%	27%	31%	.019
<i>Client sales</i>				
United States 1988, NYSE—Tonge and Wootton (1991)	72%	99%	n.a.	n.a.
Denmark 1990, Copenhagen Stock Exchange— Christiansen and Loft (1992)	71%	n.a.	80%	n.a.
Germany 1990, 200 public clients—Marten (1996)	60%	72%	n.a.	.18
Germany 1993, 200 public clients—Marten (1996)	77%	90%	n.a.	.20
Belgium 1990, 1300 largest clients— Weets and Jegers (1997)	43%	54%	62%	.0620
Belgium 1993, 1300 largest clients— Weets and Jegers (1997)	56%	69%	73%	.0920
<i>Square root of client sales</i>				
United States 1991, NYSE AMEX OTC— Wootton et al. (1994)	69%	97%	n.a.	n.a.
Germany 1990, 200 public clients—Marten (1996)	65%	75%	n.a.	.18
Germany 1993, 200 public clients—Marten (1996)	69%	80%	n.a.	.18
Denmark 1990, Copenhagen Stock Exchange— Loft and Sjöfors (1993)	26%	n.a.	36%	n.a.
Sweden 1990, Stockholm Stock Exchange— Loft and Sjöfors (1993)	20%	n.a.	29%	n.a.
Belgium 1990, 1300 largest clients— Weets and Jegers (1997)	19%	26%	31%	.0190
Belgium 1993, 1300 largest clients— Weets and Jegers (1997)	23%	31%	35%	.0220
<i>Number of clients</i>				
United States 1988, NYSE AMEX OTC— Wootton et al. (1994)	52%	83%	n.a.	n.a.
United States 1991, NYSE AMEX OTC— Wootton et al. (1994)	65%	89%	n.a.	n.a.
Spain 1988, 250 large nonfinancial clients— Corona Romero et al. (1995)	84%	92%	95%	n.a.
Spain 1993, 250 large nonfinancial clients— Corona Romero et al. (1995)	73%	85%	n.a.	.19
UK + Ireland 1989, Public and USM clients— Beattie and Fearnley (1994)	45%	n.a.	68%	n.a.
UK + Ireland 1991, Public and USM clients— Beattie and Fearnley (1994)	59%	n.a.	79%	n.a.
Belgium 1989, 1300 largest clients—Weets and Jegers (1997)	33%	43%	51%	.0410
Belgium 1991, 1300 largest clients—Weets and Jegers (1997)	39%	53%	58%	.0540
Belgium 1993, 1300 largest clients—Weets and Jegers (1997)	42%	56%	62%	.0590

segment of the audit market) whether the audit-pricing model changed over a period (i.e., 1989 and 1997) in which two mergers between Big 8 firms occurred and concentration in the audit market increased significantly.

### 3. The Belgian audit market

#### *3.1. Audit demand, supply, and production regulations in Belgium*

Audit demand, supply, and production are heavily regulated in Belgium. In this subsection, we discuss regulations that may affect the competitiveness of the Belgian audit market. Unlike the situation in the United States, demand for audit services is not voluntary for many privately held companies in Belgium. The Act of 21 February 1985 prescribes that both public and private limited-liability companies of a certain size are required to have their annual financial statements audited by a licensed statutory auditor. These size criteria<sup>3</sup> are not all that large, which implies that many relatively small companies are legally required to appoint a statutory auditor. We believe that one consequence is that actual demand is larger than what it would be if it were free and solely based on economic motivations. Demand regulation for privately held firms probably also has an impact on auditor choice decisions. As there may be little or no need for auditing based on economic grounds, relatively small private companies with few agency problems may opt for the cheapest audit possible in order to fulfill legal requirements. This may explain why the seller concentration ratios are smaller in Belgium than in other legal environments (see next subsection). As large audit firms tend to be more expensive, small companies will not acquire services from these audit firms.

Audit supply is also regulated in Belgium. Meuwissen and Maijor (1997) reviewed and compared audit supply regulations that can be expected to have a direct impact on competition in three national audit markets, namely, Belgium, the Netherlands, and Germany. They conclude that Belgium and Germany are less liberal than the Netherlands in terms of audit market regulations, and that therefore the Belgian and German audit markets can be expected to be less competitive than the Dutch. We will give a short overview of various aspects of audit supply that are regulated in Belgium and which may affect competition in the Belgian audit market. First, there is a limitation as to who can offer the statutory audit service.<sup>4</sup> Since the Act of 21 February 1985, only members of the IRE/IBR are entitled to conduct statutory audits. This implies that the amount of potential suppliers of statutory audits is much smaller in Belgium

<sup>3</sup> Limited-liability companies are required to appoint a statutory auditor if (1) they have more than 100 employees; or (2) they hit two of the following size thresholds: (a) total assets > 3,125,000 euro, (b) turnover > 6,250,000 euro, and (3) number of employees > 50.

<sup>4</sup> In general, the Belgian accounting and auditing profession is organized in two main professional bodies: the "Institut des Reviseurs d'Entreprises"/"Instituut der Bedrijfsrevisoren" (IRE/IBR, Institute of Auditors) and the "Institut des Experts Comptables et conseils fiscaux"/"Instituut der Accountants en Belastingconsulenten" (IEC/IAB, Institute of Chartered Accountants and Fiscal Advisors). Since 1985, only members of the IRE/IBR can offer statutory audit services.



compared to countries where such a restriction does not exist.<sup>5</sup> Second, the admission to the audit profession is regulated through the Royal Decree of 13 October 1987.<sup>6</sup> Third, there are some regulations with respect to the auditor's appointment. These include prohibition of solicitation and restrictions on advertising. Note that advertising rules have become less stringent in the nineties, but solicitation is still forbidden. Only factual and objective advertising on a local scale is permitted. Furthermore, statutory auditors are formally appointed by the general assembly of shareholders for a period of 3 years. Fourth, the code of professional ethics is incorporated in the law by the Royal Decree of 10 January 1994. The most important part in the code of ethics concerns auditor independence. Interesting to note is that the Belgian independence rules prohibit auditors to be employed outside the auditing profession.<sup>7</sup> Finally, it is relevant to note that only since the early nineties, big international accounting firms begun to operate under their own brand name in Belgium. Before, they operated through local partnerships because the use of international brand names was forbidden.

As to audit production, there are also regulations that may affect the Belgian audit market. Auditing standards obviously affect the production of audit services; and in Belgium, they are set by the Belgian Institute of Auditors (IBR/IRE). Of further relevance is that the Institute of Auditors also has a legal role in monitoring the competitive structure of the Belgian audit market by monitoring the pricing practices of its members. It is believed that fierce price competition would have a negative impact on auditor performance and audit quality, and therefore every auditor who is a member of the Institute is required to report to the Institute the number of hours spent on all engagements and the corresponding audit fees charged. The Institute then reviews the adequacy of the audit fees charged and the audit hours worked by Belgian auditors to safeguard audit quality.

### *3.2. Evidence on supplier concentration in the Belgian audit market: 1989–1997*

Supplier concentration in the Belgian audit market is best measured using audit fee data. As in many other countries, however, audit fee data are not publicly available in Belgium; therefore, we report audit market concentration data based on various surrogates.<sup>8</sup> Table 1

<sup>5</sup> In the Netherlands, for example, both certified accountants (Accountant-Administratieve consulenten) and registered auditors (register accountants) are allowed to perform a statutory audit.

<sup>6</sup> The formal entry requirements include the following: (1) various admission requirements (such as, for example, holding Belgian nationality, having a university degree, etc.), (2) pass an entrance examination, (3) go through a period of practical traineeship of at least 3 years, and (4) pass a final examination.

<sup>7</sup> Various other specific independence rules are prescribed, including prohibitions as to (1) managerial positions in the client firm, (2) personal relationships with the client, (3) financial interests in the client company, (4) provision of nonaudit services to a client firm, and (5) inappropriate dependence on the audit fee of a particular client.

<sup>8</sup> Moizer and Turley (1987) evaluate possible surrogates for audit fee to assess the best variables to calculate audit market concentration and found that client sales and the square root of client sales provide, respectively, consistent overestimates and underestimates of concentration measures based upon audit fees. Note that Tomczyk and Read (1989) used audit fees to calculate audit market concentration for the 28 largest audit firms in the United States and report that their results are consistently lower than those in prior studies that used proxies to calculate concentration measures.

includes CR4, CR6, CR8 ratios, and the Herfindahl index for the Belgian audit market and is based on the results from a study by Weets and Jegers (1997)<sup>9</sup> for the years 1989 through 1994/1995 and our own assessments for the years 1989 and 1997 as these years are relevant to the empirical analysis further in our study. We believe that our own assessments are particularly relevant as they are based on auditor data instead of client data. The surrogates we used are (1) the number of qualified professionals per audit firm (as in Weets & Jegers, 1997) and (2) the personnel cost per audit firm as reported in the financial statements of the audit firm. To assess the concentration ratios based on the second surrogate, we had to collect all financial statements submitted by Belgian audit firms to the Belgian National Bank for the years 1989 and 1997. From those financial statements, we obtained the personnel cost and used it to compute the respective concentration ratios (CR4, CR6, CR8, and HHI). Since only limited liability companies that hit certain size thresholds have to submit financial statements to the Belgian National Bank, our sample did not include the smallest audit suppliers in Belgium.<sup>10</sup> From studying Table 1, it is clear that market concentration gradually increased between 1989 and 1997.

Table 2 provides an overview of concentration ratios in several European countries and the United States based on various surrogates. From Table 2, we see that supplier concentration is much smaller in Belgium than in many other countries, such as the Netherlands, the United Kingdom, the United States, Germany, and Spain. Only Denmark and Sweden have concentration ratios comparable to the low levels reported for Belgium. One needs to keep in mind though that most measures in other countries were based on samples of public firms, whereas the Belgian measures were based on the 1300 largest (also nonpublic) firms.<sup>11</sup> Another interesting feature from both Tables 1 and 2 is that supplier concentration tends to increase in all countries during the nineties (including Belgium).

A qualitative interpretation of the size of concentration ratios per se does not provide strong evidence. Therefore, we execute some further tests in seeking answers to the following two questions: first, was supplier concentration in the Belgian audit market significant, both in 1989 and 1997? And second, is the increase in supplier concentration between 1989 and 1997 significant? To answer the first question, we use a method suggested in the Industrial

<sup>9</sup> Weets and Jegers (1997) use proxies that are typically used in the literature: clients sales, square root of client sales, number of clients, and total assets (clients). They also include a ratio based on the number of qualified professionals per audit firm.

<sup>10</sup> In 1989, there were (1) 739 auditors—members of the Institute of Auditors of which 542 (that is 73%) belonged to an audit firm and (2) 120 audit firms of which 60 (that is 50%) submitted their financial statements to the Belgian National Bank. In 1997, there were (1) 958 auditors—members of the Institute of Auditors of which 768 (that is 80%) belonged to an audit firm and (2) 276 audit firms of which 212 (that is 77%) submitted their financial statements to the Belgian National Bank.

<sup>11</sup> However, a sound comparison is possible between the Dutch and Belgian market for the concentration ratios based on the number of qualified professionals per audit firm as the entire population was used to compute the measure in both countries. This shows that the Belgian audit market is by far less concentrated than the Dutch. Thus, even though regulations are stricter in Belgium, there is less supplier concentration. One explanation for this finding is that regulation tends to protect the small audit supplier against the large audit supplier, and therefore the concentration ratios are smaller in Belgium where (especially) supplier regulation is more pronounced than in the Netherlands.



Table 3  
Significance tests of concentration ratios (after Parker, 1991<sup>a</sup>)

	Personnel cost				Number of qualified professionals			
	1989		1997		1989		1997	
	Actual value	Critical value*	Actual value	Critical value*	Actual value	Critical value*	Actual value	Critical value*
CR 4	47.22%	55.15%	62.69%	67.12%	21.65%	42.50%	26.93%	48.44%
CR 6	59.75%	67.83%	77.36%	80.09%	26.66%	58.40%	32.25%	62.31%
CR 8	67.99%	77.20%	80.42%	88.65%	30.31%	68.04%	35.70%	71.69%

For a full technical representation, refer to Parker (1991).

<sup>a</sup> CR<sub>*n*</sub> is characterized by the following cumulative distribution function (the variable names are adapted to those used in this paper):

$$\Pr[CR_n \leq CR_n^*] = \sum_{j'} (-1)^{N-j} \frac{1}{j} (jCR_n^* - n)^{N-1} Q_j$$

Where  $N$  = the total number of firms in the market excluding negligible firms (in this paper, they are those with market share less than 0.5%);  $n$  = number of the  $n$  largest audit firms in the market;  $CR_n^*$  = critical concentration ratio of the  $n$  largest firms at level of significance  $\alpha$  (below this level, concentration is not significant);  $1 - \alpha = \Pr[CR_n \leq CR_n^*]$ ;  $j$  = index of the summation over the range of  $n/CR_n^* < j \leq N$  for integer values of  $j$

$$Q_j = \frac{1}{n^{N-k-1}(j-n)^{n-1}} \cdot \frac{N!}{(N-j)!(j-n)!n!}$$

\* The critical values are calculated at  $\alpha = 5\%$ .

Organization literature by Parker (1991) to interpret how severely concentrated a market is. The basic idea of the method is to test whether a particular concentration ratio is significantly larger than a benchmark ratio that is being generated by a purely random allocation of market shares.<sup>12</sup> We computed such benchmark ratios based on the “personnel cost” and “number of qualified professionals” surrogates for both 1989 and 1997. The results of our application of the Parker method are reported in Table 3 and indicate that the CR4, CR6, and CR8 in our study are individually not significant (at  $p < 5\%$ ) both for 1989 and 1997, as they are below the computed critical values. This evidence is supportive of our prior conclusion that the Belgian audit market is not concentrated.

As to the change in the respective concentration ratio numbers (CR4, CR6, and CR8) between 1989 and 1997, we considered the change in the average aggregate market share of the biggest audit firms; that is, the Big 8 in 1989 and the Big 6 in 1997. We then tested whether this change is significant by the  $t$  test of mean differences (where the null hypothesis is that there is no change in the average market share and the alternative hypothesis is that there is significant increase). As there may be a concern about the normality of the data, we also executed a Wilcoxon rank sum test. We found that the  $t$  tests on both types of concentration ratios were significant with  $p$  values less than 5%, as were the Wilcoxon tests.<sup>13</sup> Overall, we can conclude that although the concentration ratios per se were not

<sup>12</sup> For a full technical discussion of the method, see Parker (1991).

<sup>13</sup> One exception was the result for the concentration ratio based on number of qualified professionals that has a  $p$  value of 6%.



significant in 1989 or 1997, we have evidence that the increase in supplier concentration in the Belgian audit market between 1989 and 1997 was significant.

#### 4. Research questions on audit pricing

The evidence on supplier concentration presented above raises at least two interesting research questions about audit pricing in the private client segment of the Belgian audit market. First, given the lower concentration ratios in that market segment, do large audit suppliers (in terms of market share) charge audit fee premia as is the case in the market segment for publicly held firms? Second, given the significant increase in supplier concentration and two megamergers between Big 8 firms, did the audit-pricing model change between 1989 and 1997?

To answer the first question, we will test whether market power (proxied by auditor market share) has an impact on audit pricing, both in 1989 and 1997 (that is, before and after the megamergers that happened in 1989). Most oligopoly theories predict a positive relationship between price and seller concentration (see, for example, Weiss, 1989). It is argued that in a market with a few dominant players, the likelihood of collusion and price leadership is larger. However, the evidence from prior audit fee research suggests that (1) high concentration may allow market leaders to develop expertise-related economies of scale that allow them to maintain relatively low fees (Danos & Eichenseher, 1982, 1986; Defond et al., 2000), and (2) fee premia charged by Big 8/6 firms result from product differentiation rather than market power (Francis, 1984; Francis & Simon, 1987; Lee, 1996; Palmrose, 1986a, 1986b). In the context of our study of the private client segment of the audit market, it is reasonable to expect that large audit firms experience more competition from local and national auditors than they do in the public client segment. Hence, given the relatively low concentration ratios in the Belgian audit market, we only expect a significant price premium should there be product differentiation by large audit firms. Our first research question is stated below:

*RQ1:* Is there a significant positive association between auditor market share and audit pricing in the private client segment of the audit market, *ceteris paribus*? And is this the case in both 1989 and 1997?

The second question we try to address is whether the significant increase in seller concentration from 1989 until 1997 and the mergers of the Big 8 into the Big 6 had any impact on the audit-pricing model. We chose 1989 as our first observation year because it was the last year that pricing practices could not be affected by the two mergers. We opted for 1997 as our second observation year since it left enough time after the mergers so that a new “equilibrium” pricing model could be established. Note that the time interval between our two observation years has to be sufficiently long as there is a fixed auditor tenure period of 3 years in Belgium. Also, pricing evidence in Menon and Williams (2001) for the public client segment of the U.S. audit market indicates that mergers first have an increasing effect on pricing that disappears (into a status quo) after a few years.

To the extent that the increase in market concentration led to an increase in market power of the largest audit firms, we may expect an increase in audit fees charged by these firms, *ceteris paribus*. However, the mergers may not necessarily have led to less competition and higher prices. Tonge and Wootton (1991), for example, state that the merger of the smaller Big 8 firms may have had the effect that they have become more competitive with the larger Big 8 firms. Further, the same may hold for mergers of non-Big 6 firms with Big 6 firms. Hence, two opposite hypotheses with respect to audit pricing before and after the mergers are likely: an “increased market power hypothesis” and an “increased competition hypothesis.” According to the market power hypothesis, the increase in individual market shares of large auditors and the related increase in audit market concentration between 1989 and 1997 is associated with significant audit price increases between 1989 and 1997. According to the increased competition hypothesis, the increase in individual market shares of large auditors and the related increase in audit market concentration between 1989 and 1997 has no impact on audit pricing between 1989 and 1997 or would be associated with significant price decreases between 1989 and 1997. To find out which of these two hypotheses is empirically supported, we will need to address the following research questions:

*RQ2:* Has audit pricing become more competitive between 1989 and 1997? How did the impact of auditor market share and other significant determinants in the audit-pricing model change between 1989 and 1997?

## 5. Audit fee model and research method

### 5.1. The audit fee model

To examine the effect of the market power of audit firms on audit pricing, we adopt an audit fee model (see Eq. (1)) that is consistent with prior audit fee research (see, for example, Simunic, 1980, and subsequent studies) and that has proven to be robust over time and countries.

$$\begin{aligned} \text{LNFEED} = & \alpha + \beta_1 \text{POWER} + \beta_2 \text{LNASSET} + \beta_3 \text{SUB} + \beta_4 \text{QUICK} \\ & + \beta_5 \text{LTD} + \beta_6 \text{LOSS} + \beta_7 \text{RECINV} + \beta_8 \text{SWITCH} + \beta_9 \text{IAUD} \\ & + \beta_{10} \text{MANUF} + \beta_{11} \text{TRADE} \end{aligned} \quad (1)$$

where Dependent variables: LNFEED=natural log of audit fee; Independent variables: POWER=auditor market share proxy; LNASSET=natural log of total assets (client); SUBS=square root of the number of operating locations; QUICK=quick ratio; LTD=long-term debt divided by equity; LOSS=indicator variable (1 = experienced loss in the last 2 years, 0 otherwise); RECINV=(account receivables + inventory)/total assets; SWITCH=indicator variable (1 = engage in auditor switch within the last 2 years, 0 otherwise); IAUD=indicator



variable (1 = there is an internal auditor in the company, 0 otherwise); MANUF = indicator variable (1 = industrial sector, 0 otherwise); TRADE = indicator variable (1 = trade sector, 0 otherwise).

As in other studies, we define the dependent variable as the natural log of the audit fee. As to the independent variables, we include POWER, the auditor's market share, as our test variable and a number of independent variables to control for cross-sectional differences in factors that affect audit fees. Consistent with prior research, these control variables contain an auditee size variable, a complexity variable, risk variables, and some other variables that have proven to be significant fee determinants in prior studies. In particular, LNASSET (the natural log of total assets) is the client size variable, and SUBS (the square root of the number of company operating locations) is our complexity variable. Our risk variables include the following: QUICK, the quick ratio; LTD, the ratio of long-term debt-to-equity; LOSS, an indicator variable to assess whether the client reported a loss during the last 2 years or not; and RECINV, the ratio of the sum of receivables and inventory to total assets. Other control variables that we included are the following: SWITCH, to control for a possible low-balling effect on audit fees in case of a first-year audit engagement; IAUD to control for the existence of internal audits; and two industry variables, MANUF and TRADE, to capture possible industry effects on the audit fee. For an overview of the predicted signs on coefficients of all independent variables, we refer to Table 5. These signs are consistent with expectations and findings in prior studies.

## 5.2. Research method

To address RQ1, whether market power affected audit pricing in the private client segment of the audit market in 1989 and 1997, we ran the regression model in Eq. (1) separately for our respective samples of 1989 and 1997 data. For each period, we then assessed the sign of the coefficient on our test variable POWER. We defined POWER as the incumbent auditor's market share, measured by a proxy based on that auditor's personnel cost relative to the whole audit market, that is:

$$\text{POWER} = \frac{\text{Incumbent audit firm's personnel cost as reported in its financial statements}}{\text{Sum of personnel cost reported by all audit firms in the audit market}}$$

Audit firm personnel cost data were collected for both 1989 and 1997. Note that, unlike prior studies, we did not define market power by the Big 8/6 variable to capture the impact of auditor size on audit fees but include an assessment of the incumbent auditor's market share as it enables us to assess the impact of an individual auditor's market power on fees instead of the impact of (the market power of) a group of auditors (i.e., Big 8/6). However, our sensitivity tests include an audit fee model that contains the Big 8/6 variable instead of the POWER variable, as well as a model that contains an alternative market share proxy based on the number of qualified professionals per audit firms (see the section on "sensitivity checks").



To answer RQ2, that is whether the audit-pricing model in 1997 is different from that in 1989 and whether the impact of market power and other fee determinants on pricing has changed, we ran the following regression model:

$$\begin{aligned} \text{LNFEED} = & \alpha_0 + \alpha_d \text{ YEAR} + \beta_1 \text{ POWER} + \beta_2 \text{ YEAR} \times \text{POWER} \\ & + \beta_3 \text{ LNASSET} + \beta_4 \text{ YEAR} \times \text{LNASSET} + \beta_5 \text{ SUB} + \beta_6 \text{ YEAR} \\ & \times \text{SUB} + \beta_7 \text{ QUICK} + \beta_8 \text{ YEAR} \times \text{QUICK} + \beta_9 \text{ LTD} \\ & + \beta_{10} \text{ YEAR} \times \text{LTD} + \beta_{11} \text{ LOSS} + \beta_{12} \text{ YEAR} \times \text{LOSS} \\ & + \beta_{13} \text{ RECINV} + \beta_{14} \text{ YEAR} \times \text{RECINV} + \beta_{15} \text{ SWITCH} \\ & + \beta_{16} \text{ YEAR} \times \text{SWITCH} + \beta_{17} \text{ IAUD} + \beta_{18} \text{ YEAR} \times \text{IAUD} \\ & + \beta_{19} \text{ MANUF} + \beta_{20} \text{ YEAR} \times \text{MANUF} + \beta_{21} \text{ TRADE} + \beta_{22} \text{ YEAR} \\ & \times \text{TRADE} \end{aligned} \quad (2)$$

We included an indicator variable for whether the observations relate to 1989 (YEAR = 0) or 1997 (YEAR = 1). The coefficient on YEAR represents the intercept shift between the 1989 and 1997 fee model. We also included interaction terms for each of the explanatory variables with YEAR; the coefficients on these represent the slope shifts between these years. The *t* tests on the coefficients of these interaction terms indicate whether or not the change of a parameter in the fee model between 1989 and 1997 was significant.

## 6. Sample selection and results

### 6.1. Sample selection and descriptive statistics

As audit fee data are not publicly available in Belgium, we needed to collect our 1989 and 1997 data by sending questionnaires to audit clients. In 1991, we constructed a data base of audit fee data based on a questionnaire sent to a random sample of 300 privately owned Belgian firms. The aim was to gain information for the year 1989 on the statutory auditor that had been appointed, the audit fee that had been paid, and other nonpublicly available information that is necessary to estimate the audit fee model specified in Eq. (1) (such as the number of operating locations, the number of subsidiaries, number of years of auditor tenure, and the presence of an internal audit function). In 1999, we collected more fee data for the year 1997 and randomly selected 600 privately held Belgian firms, asking the same (and some additional) questions. We received, respectively, 81 and 128 responses to the 1989 and 1997 questionnaires. We completed our data set with financial statement information from the CD-ROM of the Belgian National Bank. Finally, we deleted observations with missing values, public companies, and

extreme outliers from both samples and retained, respectively, 48 and 71 useful observation sets for 1989 and 1997.

Since we are comparing data from two different time periods, we needed to make price-level adjustments in order to exclude price-level effects from our analysis. Therefore, we express all continuous variables in our 1997 data set in 1989 prices. To that end, we used the production price index as reported by the *Financieel Economische Tijd*, the leading Belgian economic journal.

Table 4 provides descriptive statistics for both samples ( $n_{1989}=48$ ;  $n_{1997}=71$ ) and the population ( $N_{1997}=8344$ )<sup>14</sup> from which the samples are drawn. The average audit fee (in 1989 prices) was 495 thousands Belgian francs (BEF)<sup>15</sup> in 1989 and 342 thousands BEF in 1997 (adjusted to 1989 prices). In our 1989 data set, 39.6% were Big 8 clients, and 46.5% of 1997 clients were audited by a Big 6 auditor. This increase is consistent with the increase in seller concentration in the Belgian audit market reported above. The average sizes of the client companies in both samples are, respectively, 881 million and 525 million BEF for 1989 and 1997. The 1997 sample thus includes smaller firms on average. As to the financial health of the companies in our sample, the differences between the two sample years are not large for QUICK and LOSS, but the 1997 sample includes, on average, companies with higher leverage than the 1989 sample. The percentage of companies with an internal audit department is larger for the 1997 sample. As to RECINV, there is a difference between the two samples, with a larger ratio in 1989.

## 6.2. Results of the audit fee regression model for 1989 and 1997 (RQ1)

To answer the question whether there is a significant positive association between auditor market share and audit pricing in the Belgian audit market and whether this is the case both in 1989 and 1997, we discuss the results of the regressions we ran on our 1989 and 1997 samples. These results are reported in columns 3 through 5 of Table 5.

The audit fee model as specified in Eq. (1) was highly significant both in 1989 and 1997 ( $p<.0001$  for both years); it explained 71% of variation in audit fees in 1989 and 81% in 1997. No multicollinearity nor heteroscedasticity problems were identified (a correlation matrix of independent variables for both years is provided in Appendix A).

From Table 5, it is also clear that our test variable, POWER, is positive and highly significant both in 1989 and 1997 ( $p=.0012$  and  $.0001$ , respectively). This implies that audit firms were able to charge higher audit fees the larger their market share, *ceteris paribus*. Our test does not indicate whether this is due to market power or product differentiation. Since we are analyzing the private client segment of the audit market, which is characterized by relatively small concentration ratios, one would expect that competition would preempt audit firms from charging price premia unless for differ-

<sup>14</sup> This population is the group of Belgian companies that is legally required to appoint a statutory auditor. We could only assess this for 1997, as the data for 1989 were not available.

<sup>15</sup> In 1989, USD 1  $\approx$  BEF 37 and in 1997 USD 1  $\approx$  BEF 33.

Table 4

Descriptive statistics on the test and control variables for the regression analysis

Panel A	1989	N = 48				
<i>Categorical variables (proportion of dummy = 1)</i>						
SWITCH	.2500					
LOSS	.2292					
IAUD	.2917					
MANUF	.7500					
TRADE	.2083					
BIG 8	.3958					
<i>Continuous variables</i>						
	Mean	S.D.	Min	Median	Max	
POWER	0.0409	0.0472	0.0003	0.0175	0.1725	
FEE(1000)	495	457	41	368	2000	
ln(FEE)	5.8033	0.9401	3.7197	5.9065	7.6009	
ASSETS (1000)	881,632	1,165,702	100,315	486,333	7,142,069	
ln(ASSETS)	13.1855	0.9672	11.5161	13.0945	15.7815	
Sqr(SUBS)	1.3548	0.6172	1.0000	1.0000	3.4641	
QUICK	1.0877	0.5859	0.3800	0.9350	3.1000	
LTD	0.2705	0.6042	− 2.6349	0.1681	2.0729	
RECINV	0.5898	0.1915	0.1576	0.5776	0.9537	
Panel B	1997 <sup>a</sup>	N = 71				
<i>Categorical variables (proportion of dummy = 1)</i>						
SWITCH	.3662					
LOSS	.2394					
IAUD	.3521					
MANUF	.3944					
TRADE	.3239					
BIG 6	.4648					
<i>Continuous variables</i>						
	Mean	S.D.	Min	Median	Max	Market mean
POWER	0.0735	0.0815	0.0000	0.0161	0.2043	
FEE (1000)	342	314	18	209	1668	
ln(FEE)	5.4655	0.8857	2.9096	5.3401	7.4195	
ASSETS (1000)	525,802	916,623	2,413	238,669	4,809,935	1,666,775
ln(ASSETS)	12.2069	1.4817	7.7888	12.3828	15.3862	12.7457
Sqr(SUBS)	3.5807	4.3878	1.0000	1.4142	14.1421	
QUICK	1.1296	0.6846	0.0200	1.0100	3.2300	1.2641
LTD	0.4177	0.7763	− 0.3624	0.0289	4.2497	1.0025
RECINV	0.3713	0.1995	0.0000	0.3585	0.8411	0.6212

<sup>a</sup> All 1997 observations were deflated into 1989 prices.

entiated products. However, somewhat remarkable is that the impact of POWER on the audit fee decreased between 1989 and 1997, a period in which supplier concentration increased significantly in Belgium. The coefficient on POWER dropped from 7.9716 to



Table 5  
Regression of audit fee on test and control variables in 1989 and 1997

Variable (1)	Predicted sign <sup>a</sup> (2)	1989 ( <i>n</i> = 48)			1997 ( <i>n</i> = 71)			Changes between 1989 and 1997		
		Coefficient estimate (3)	<i>t</i> statistic (4)	<i>P</i> value (5)	Coefficient estimate (6)	<i>t</i> statistic (7)	<i>P</i> value (8)	Coefficient estimate (9)	<i>t</i> statistic (10)	<i>P</i> value (11)
Intercept	?	0.8221	0.5020	.6188	-1.0337	-1.9700	.0536	-18.5580	-1.2410	.2175
POWER		7.9716	3.5220	.0012***	4.3461	5.8310	.0001***	-3.6255	-1.7470	.0839*
<i>Control variables</i>										
LN(ASSETS)	+	0.3532	3.2510	.0025***	0.4853	11.8120	.0001***	0.1321	1.2900	.2002
SUBS	+	0.3765	2.3500	.0244**	0.0366	2.6870	.0093***	-0.3399	-2.5320	.0130**
QUICK	-	-0.3614	-2.2350	.0317**	0.2471	2.9320	.0048***	0.6085	3.6470	.0004***
SWITCH	-	0.7051	3.0500	.0043***	0.1983	1.6850	.0973*	-0.5067	-2.1410	.0348**
LTD	+	-0.1281	-0.8170	.4191	-0.1306	-1.7790	.0803*	-0.0025	-0.0160	.9873
LOSS	+	0.1239	0.5610	.5780	-0.0751	-0.6100	.5442	-0.1990	-0.8520	.3962
LAUD	-	-0.2468	-1.0730	.2902	0.1440	1.3360	.1867	0.3908	1.7050	.0914*
MANUF	±	-0.0590	-0.1290	.8977	-0.3053	-2.4210	.0186**	-0.2463	-0.6060	.5463
TRADE	±	0.0914	0.1850	.8542	0.1785	1.4600	.1497	0.0872	0.2000	.8416
RECINV	+	-0.3253	-0.6020	.5511	-0.3855	-1.3650	.1776	-0.0602	-0.1080	.9144
<i>R</i> <sup>2</sup>		1989 Regression (Eq. (1))			1997 Regression (Eq. (1))			1989 + 1997 Regression (Eq. (2))		
Adjusted <i>R</i> <sup>2</sup>		.7100			.8188			.7795		
<i>F</i> statistic		.6210			.7851			.7261		
<i>P</i> value <i>F</i> test		8.017			24.242			14.600		
		.0001			.0001			.0001		

<sup>a</sup> Only for coefficients in columns 3 and 6.

\* Significant at  $\alpha < .10$ , two-tailed test.

\*\* Significant at  $\alpha < .05$ , two-tailed test.

\*\*\* Significant at  $\alpha < .01$ , two-tailed test.

4.3461. This implies that an increase in POWER by 1% resulted in an audit fee increase of 8.30% in 1989 but only 4.44% in 1997. Apparently, the increase in seller concentration did not lead to an increased impact of POWER on fees, which indicates that competition between audit firms increased rather than decreased between 1989 and 1997. This result is consistent with prior research findings in the public client segment (see, for example, Wootton et al., 1994) that increased market concentration increases rather than decreases competition between audit firms.

As to the control variables in the model, in 1989, LNASSETS and SWITCH were significant at  $p < .01$ , and QUICK and SUBS at  $p < .05$ . In 1997, LNASSETS, SUBS, and QUICK are significant at  $p < .01$ , MANUF at  $p < .05$ , and SWITCH and QUICK at  $p < .05$ .

Prior studies in the public client segment of the audit market have reported evidence supportive of low balling, with a significant negative coefficient on auditor-switching variables. Competition among audit suppliers has been put forward as the explanation for the low-balling phenomenon. An interesting result of this study is that we find a positive sign of the coefficient on SWITCH (both in 1989 and 1997; however, only significant in 1989). This result remains robust across alternative fee models that we ran (see further under “sensitivity checks”) and may indicate a lack of competition in the Belgian audit market, especially in 1989. Obviously, initial audit engagements require more effort and hence are more costly to perform. With little competition, audit firms are able to price the additional initial engagement costs through to their new clients, which explain the positive coefficient on the SWITCH variable. The fact that the positive coefficient drops from .7051 to .1983 between 1989 and 1997 and loses some significance adds more evidence to our finding that competition in the audit market increased by 1997 and that the ability to price initial engagement costs through decreased.

### 6.3. *Changes in the audit fee model between 1989 and 1997 (RQ2)*

Columns 9, 10, and 11 of Table 5 present the results on the interaction terms as specified in Eq. (2) and thus on the significance of the impact of the various explanatory variables on audit pricing. The results strongly suggest that audit pricing has become more competitive between 1989 and 1997. First, the impact of POWER on audit pricing has decreased in a significant way ( $p = .0839$ ). This implies that market power through market share has a smaller impact on audit pricing. Second, the positive impact of switching on audit pricing dropped significantly ( $p = .0348$ ). In other words, the premia auditors that are able to charge for new clients have decreased significantly, and pricing on initial audit engagements became more competitive in 1997 than in 1989. Note that as to the change of impact of the other audit fee determinants between 1989 and 1997, we found significant results at  $p < .01$  for QUICK,  $p < .05$  for SUBS, and  $p < .10$  for IAUD. It is remarkable that the coefficient on QUICK significantly increased from  $-.3614$  to  $.2471$  in 1997. This can be interpreted as an indication that audit firms have become more risk taking in 1997 and are even granting price discounts to client firms that are less liquid. Further, the positive impact of complexity (SUBS) on audit pricing dropped from  $.3765$  to  $.0366$ . This result suggests that audit firms have become more efficient in



auditing complex firms. Finally, since the impact of IAUD in itself is not significant in both years, its change may not be important.

#### *6.4. Sensitivity tests*

We performed the following sensitivity checks to test the robustness of our results: We reran our fee models both for 1989 and 1997 using different proxies for POWER, and accordingly we reran the interaction model in Eq. (2). We tested two alternative POWER measures. First, an alternative assessment of auditor market share based on the number of qualified professionals per audit firm; and second, the traditional Big 8/6 variable. We find robust results both for the 1989 and 1997 pricing models, as the significance of the coefficients of the various fee determinants was not affected. The results from the interaction model also remain robust.

### **7. Conclusions**

In this paper, we analyze supplier concentration and pricing in the private client segment of the Belgian audit market in the period 1989–1997. Audit market concentration in Belgium in 1989 and 1997 is lower compared to most other industrialized countries. Concentration per se is not significant in both observation years, but there is a significant increase in concentration between 1989 and 1997.

Given our assessments of market concentration for 1989 and 1997 and the changes that took place in the audit environment during that period, we then investigated audit pricing in the private client segment of the Belgian audit market and the changes therein between 1989 and 1997. Unlike prior studies, which focused on the large (public) client segment of the audit market and assume that pricing in the small client segment is competitive (see Simunic, 1980), we tried to assess whether (1) indeed pricing is competitive in the smaller (and private) client segment of the audit market (both in 1989 and 1997), and (2) whether the increase in market concentration between 1989 and 1997 resulted in more or less price competition. We found that audit pricing is significantly associated with the incumbent auditor's market share (and thus to some extent his market power). This result is similar to prior results on pricing in the public client segment of the audit market and differs from the general expectation (assumption) that no price premium would be associated with auditor size in the small (auditee) client segment of the market. However, it is not clear whether this finding implies that there is a lack of price competition in the market or whether the price premium is due to product differentiation.

We also report some interesting results as to the change in the pricing model between 1989 and 1997. The evidence strongly suggests that price competition increased between 1989 and 1997. First, we find that the impact of POWER (the auditor's market share) on pricing decreased significantly between 1989 and 1997. Second, we find a significant change in the impact of the SWITCH variable on pricing consistent with an increase in price competition in the audit market for initial engagements. Unlike prior studies, we



find a positive, significant coefficient for the SWITCH variable in 1989, which is a clear indication that the audit market was not very competitive at that time. By 1997, the results show a nonsignificant and much smaller positive coefficient on SWITCH. Overall, our results are consistent with prior findings in the public client segment of the audit market: that increased concentration does not necessarily lead to decreased price competition but rather to increased price competition (see, for example, Pearson & Trompeter, 1994).

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Appendix A

	LN_FEE89	POWER	LN_ASSET	SUBS	QUICK	SWITCH	LTD	LOSS	IAUD	MANUF	TRADE	REC
<i>Panel A: 1989 Correlation analysis</i>												
POWER	.6069	1.0000	.2603	.1439	-.0395	.1991	-.3009	.2161	.1742	.2814	-.2131	-.0373
LN_ASSET	.0001	.0000	.0740	.3292	.7901	.1750	.0377	.1403	.2364	.0527	.1459	.8012
	.5806	.2603	1.0000	.3706	-.0761	-.0230	.0620	.0787	-.0920	.1815	-.2399	-.2412
	.0001	.0740	.0000	.0095	.6072	.8768	.6754	.5949	.5339	.2169	.1005	.0987
SUBS	.4086	.1439	.3706	1.0000	-.0842	-.2124	.0048	.1096	-.1230	-.0466	.1092	.0951
	.0039	.3292	.0095	.0000	.5692	.1472	.9742	.4584	.4050	.7534	.4599	.5203
QUICK	-.2215	-.0395	-.0761	-.0842	1.0000	.1301	-.1084	-.2218	-.2560	.1073	-.1307	-.0925
	.1303	.7901	.6072	.5692	.0000	.3782	.4633	.1297	.0791	.4681	.3760	.5319
SWITCH	.2767	.1991	-.0230	-.2124	.1301	1.0000	.0055	-.0859	.2646	-.1111	.0592	.1400
	.0569	.1750	.8768	.1472	.3782	.0000	.9706	.5618	.0691	.4521	.6892	.3428
LTD	-.1543	-.3009	.0620	.0048	-.1084	.0055	1.0000	.0413	.0934	.0586	-.0293	-.1561
	.2952	.0377	.6754	.9742	.4633	.9706	.0000	.7802	.5279	.6922	.8432	.2894
LOSS	.1788	.2161	.0787	.1096	-.2218	-.0859	.0413	1.0000	.3044	.0859	-.0356	-.0414
	.2239	.1403	.5949	.4584	.1297	.5618	.7802	.0000	.0354	.5618	.8102	.7800
IAUD	.0472	.1742	-.0920	-.1230	-.2560	.2646	.0934	.3044	1.0000	.0529	-.1035	-.2044
	.7503	.2364	.5339	.4050	.0791	.0691	.5279	.0354	.0000	.7209	.4841	.1635
MANUF	.0620	.2814	.1815	-.0466	.1073	-.1111	.0586	.0859	.0529	1.0000	-.8885	-.3744
	.6754	.0527	.2169	.7534	.4681	.4521	.6922	.5618	.7209	.0000	.0001	.0088
TRADE	-.0487	-.2131	-.2399	.1092	-.1307	.0592	-.0293	-.0356	-.1035	-.8885	1.0000	.4408
	.7426	.1459	.1005	.4599	.3760	.6892	.8432	.8102	.4841	.0001	.0000	.0017
REC	-.0156	-.0373	-.2412	.0951	-.0925	.1400	-.1561	-.0414	-.2044	-.3744	.4408	1.0000
	.9164	.8012	.0987	.5203	.5319	.3428	.2894	.7800	.1635	.0088	.0017	.0000
BIG	.7939	.7939	.3933	.1902	-.0086	.2214	-.1538	.0655	.0430	.2706	-.2054	-.0532
	.0001	.0001	.0057	.1954	.9540	.1305	.2967	.6585	.7719	.0629	.1613	.7196

Panel B: 1997 Correlation analysis

Pearson correlation coefficients/Prob&gt;|R| under Ho: Rho = 0/N = 71

POWER	.3869	1.0000	-.1207	.3283	-.0008	.2978	-.1095	-.2125	-.0396	.0708	-.0405	.0907
LN_ASSET	.0009	.0000	.3162	.0052	.9950	.0117	.3636	.0752	.7431	.5572	.7373	.4518
	.6937	-.1207	1.0000	.3223	-.2866	.0141	.2745	-.0934	.1270	.3637	-.0691	-.1290
SUBS	.0001	.3162	.0000	.0061	.0154	.9073	.0205	.4387	.2914	.0018	.5670	.2836
	.4846	.3283	.3223	1.0000	-.1508	-.0462	.1539	-.1881	.0761	.1927	.1559	.0401
QUICK	.0001	.0052	.0061	.0000	.2093	.7022	.2000	.1163	.5284	.1074	.1943	.7398
	-.1120	-.0008	-.2866	-.1508	1.0000	-.2288	-.1245	.0241	.0269	-.0177	-.0793	.3322
SWITCH	.3523	.9950	.0154	.2093	.0000	.0550	.3008	.8416	.8237	.8833	.5112	.0046
	.1759	.2978	.0141	-.0462	-.2288	1.0000	-.0125	.1216	-.0095	-.0152	-.0264	.0861
LTD	.1423	.0117	.9073	.7022	.0550	.0000	.9173	.3125	.9374	.9001	.8270	.4754
	.0035	-.1095	.2745	.1539	-.1245	-.0125	1.0000	.1168	-.0998	.2985	-.2540	-.2649
LOSS	.9766	.3636	.0205	.2000	.3008	.9173	.0000	.3319	.4078	.0115	.0326	.0256
	-.2113	-.2125	-.0934	-.1881	.0241	.1216	.1168	1.0000	-.0681	-.0476	.0348	-.1088
IAUD	.0769	.0752	.4387	.1163	.8416	.3125	.3319	.0000	.5724	.6937	.7735	.3665
	.1876	-.0396	.1270	.0761	.0269	-.0095	-.0998	-.0681	1.0000	.1292	.1198	-.0098
MANUF	.1172	.7431	.2914	.5284	.8237	.9374	.4078	.5724	.0000	.2830	.3196	.9352
	.1153	.0708	.3637	.1927	-.0177	-.0152	.2985	-.0476	.1292	1.0000	-.4354	.0557
TRADE	.3383	.5572	.0018	.1074	.8833	.9001	.0115	.6937	.2830	.0000	.0001	.6443
	.0890	-.0405	-.0691	-.1559	-.0793	-.0264	-.2540	.0348	.1198	-.4354	1.0000	-.0166
REC	.4607	.7373	.5670	.1943	.5112	.8270	.0326	.7735	.3196	.0001	.0000	.8906
	-.0527	.0907	-.1290	.0401	.3322	.0861	-.2649	-.1088	-.0098	.0557	-.0166	1.0000
BIG	.6623	.4518	.2836	.7398	.0046	.4754	.0256	.3665	.9352	.6443	.8906	.0000
	.4154	.7714	.0179	.3595	-.0883	.2295	-.0955	.0065	-.0366	-.0008	-.0416	.0710
	.0003	.0001	.8821	.0021	.4639	.0542	.4283	.9569	.7616	.9946	.7302	.5566



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## Discussion

# Discussion of “Pricing and Supplier Concentration in the Private Client Segment of the Audit Market: Market Power or Competition?”

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Willekens and Achmadi (2003) document an increase in audit supplier concentration within a sample of 300 privately owned Belgian firms in 1989 versus 1997 as well as interyear changes in the strength of association between several predictor variables (e.g., auditee quick ratios) and audit fees. They also speculate on how Belgian audit market institutions and regulations likely affect both audit supplier concentration and determinants of audit pricing. While Willekens and Achmadi provide a set of stimulating empirical observations, readers should consider several issues when attempting to assess their article's overall message. I use the remainder of this discussion to describe four key issues.

## 1. Is there an unexpected increase in audit supplier concentration?

The article correctly observes that customary measures of audit supplier concentration are significantly higher in 1997 than in 1989. The article also correctly observes that audit supplier concentration is not remarkably high in 1989 or 1997. A puzzling issue that the article does not address is whether the increase in concentration is greater than one would expect after a merger between large audit suppliers. If the research question were whether audit supplier concentration nominally increases when two “big  $n$ ” firms merge so that afterwards there are “ $n - 1$ ” big firms, the question would have little a priori tension. A more interesting question would be whether, as a result of increased market(ing) power, the  $n - 1$  big firms penetrate a disproportionately greater share of the audit market than historically penetrated by  $n$  big firms. This question would call for a “difference of a difference” test

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statistic, namely a comparison of the difference between 1989 actual and critical values to the difference between 1997 actual and critical values. Inspection of Table 3 suggests that there is no discernable difference-of-difference measure. Thus, the concentration ratios appear to provide little evidence that the remaining  $n - 1$  big firms collectively enjoyed a disproportionate increase in marketing power.

## 2. Why either “increased market power” or “increased competition?”

Given the research design, Willekens and Achmadi have difficulty discerning whether two (or more) explanations, such as market power and competition, are simultaneously operative. Theoretically, increases in market power and competition are not inherently contradictory and regression coefficients simply pick up composite or “net” effects. These composite effects could stem from one explanation being operative but not the other or from both explanations being operative. Readers should be aware that even nonsignificant coefficients could obtain in a regression as a result of two strong, economically meaningful effects that offset one another.

Perhaps more important, there is another alternative to consider. The article precludes contemplation of this other alternative by asking readers to *presume* audit suppliers compete mostly on cost and that audits are commodities. Audit suppliers, however, also can compete on quality. Audit reports are not the only deliverable associated with audit services. In a U.S. statutory financial-statement audit, auditors traditionally have identified control weaknesses and suggested improvements. More recently, financial-statement auditors at several of the big 4 have started using a strategic systems perspective to evaluate and communicate with auditees about auditee business risks and key business processes (Bell, Marrs, Solomon, & Thomas, 1997; Bell, Peecher, & Solomon, 2002). It is not surprising, then, that privately owned U.S. auditees endogenously demand audit services and realize a reduction in transaction costs as a result (Blackwell, Noland, & Winters, 1998). It also is conceptually reasonable to conclude that, at least under some circumstances, the endogenous demand for audit services exceeds the exogenous demand (Klein, 1997).

Despite the article’s assumption that exogenous demand exceeds endogenous demand (p. 9), it does not provide convincing arguments to conclude that this would be the case for its sample of privately held Belgian auditees. These auditees likely derive transaction-cost reductions as a result of being audited. Further, the extent of transaction cost reduction likely is larger when audit suppliers have a stronger reputation for competence. As increased competence is one of the stated reasons for accounting firm mega-mergers, some pooling of expertise arguably occurs. Thus, even if fees were to increase in 1997 versus 1989, some of the increase could have been attributable to higher quality audits in addition to explanations such as greater market power.<sup>1</sup>

<sup>1</sup> The article reports that audit suppliers must report audit hours and audit fees to the Belgian Institute of Auditors (IBR/IRE), a regulatory organization. Presumably, that organization has the ability to provide data about average audit fees per hour that would be useful to conducting future research in this area to address questions about audit supplier effort and technologies.



### 3. Why 1989 versus 1997?

While the data acquisition efforts of the authors are laudable, many intervening factors occurred during the years between 1989 and 1997 (e.g., use of “big *n*” brand name). Consequently, any causal attributions for observed differences in the relative significance of predictor variables of audit fees in 1989 versus 1997 are tenuous. Further, the article justifies the choice of 1989 and 1997 by arguing that a “sufficiently long” observation period is required to allow for post-merger equilibration (p. 14), but it provides few reasons as to why 8 years would be too short, too long, or just right. In fact, as the article notes (p. 14), prior empirical–archival research suggests that the influence of audit-firm mergers may disappear after a few years (Menon & Williams, 2001). If that were true for the Belgian audit market (and the article is silent on this issue), the extent to which any merger would differentially affect the 1989 and 1997 observations would be minimal.

Thus, the research design does not enable one to develop expectations about changes in coefficients of predictor variables for audit prices between its two observation years. To ascertain whether the differences between the 1989 and 1997 regressions (see Table 5) are particularly remarkable, it would be interesting to know what type of differences occur between randomly drawn pairs of years.<sup>2</sup>

### 4. Nonaudit fees?

The article does not discuss the extent to which there is variation in the amounts of nonaudit service fees paid to auditors in its sample of Belgian auditees. To the extent that variation in nonaudit fees exists across audit suppliers, fixation on audit fees alone may be incomplete (see, e.g., Ashbaugh, Lafond, & Mayhew, 2003). Thus, the omission of nonaudit fees is notable and, even if nonaudit fees are invariant or negligible for the article’s sample of firms, nonaudit fees would be a reasonable control variable to consider including in future studies.

### 5. Concluding remarks

Herein, I have identified issues related to whether audit supplier concentration really underwent an unexpected increase from 1989 to 1997, whether such an increase in concentration may also increase the quality of audits (not just auditor power), whether it makes sense to focus on 1989 versus 1997, and whether nonaudit fees ought to have been a control variable. Despite these limitations, the stimulating observations provided by Wil-

<sup>2</sup> It is noteworthy that the paper is silent about the extent to which its two samples ( $n=300$  for 1989 and  $n=600$  for 1997) contain the same auditee firms. It would be a significant improvement to match on firms for an entire sample, but it also would be good to have a control variable for whether a given auditee firm were included in both 1989 and 1997.



lekens and Achmadi (2003) deserve readers' careful consideration. These limitations also represent opportunities for future research. It may be profitable to acquire new data from the Belgian audit-services market to further pursue these authors' research questions.

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## Reply

# Reply to discussion of “Pricing and supplier concentration in the private client segment of the audit market: Market power or competition?”

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Peecher (2003) identifies a number of relevant issues relating to “whether audit-supplier concentration really underwent an unexpected increase from 1989 to 1997, whether such an increase in concentration may also increase the quality of audits (not just auditor power), whether it makes sense to focus on 1989 versus 1997, and whether nonaudit fees ought to have been a control variable.”

## 1. Yes, there is an unexpected increase in audit supplier concentration

According to Peecher (2003), a more interesting question than those addressed in the paper through Table 3 is whether—after a merger—“the  $n-1$  Big firms penetrate a disproportionately greater share of the audit market than historically penetrated by  $n$  Big firms.” Although Peecher claims that “this question calls for a ‘difference of a difference’ test statistic, namely a comparison of the difference between 1989 actual and critical values to the difference between 1997 actual and critical values,” we believe that we did actually address this question on p. 6 of the paper. We report the results of  $t$  tests of differences between Big 8 and Big 6 concentration between 1989 and 1997, together with Wilcoxon tests, and find evidence supportive of a significant increase in market share by the Big8/6:

“...we considered the change in the average aggregate market share of the biggest audit firms: that is, the Big 8 in 1989 and the Big 6 in 1997. We then tested whether this change is significant by the  $t$ -test of mean differences..., we also executed a Wilcoxon rank-sum test. We found that the  $t$ -tests on both types of concentration ratios

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were significant with *p*-values less than 5 percent, as were the Wilcoxon tests” (Willekens & Achmadi, 2003, p. 12).

Note that the evidence provided in Table 3 is also supportive of this. From Table 3 it is clear that—based on personnel costs as an audit-fee proxy<sup>1</sup>—the eight largest audit firms (or the Big 8) penetrated 67.99 percent (CR8) of the market in 1989, which is 9.21 percent smaller than the critical-concentration value for 1989. By 1997 the Big 8 merged into the Big 6, and the six largest audit firms in Belgium (or the Big 6) by then penetrated 77.36 percent (CR6) of the market, which is only 2.73 percent smaller than the critical concentration value for 1997. Thus, Big 8/6 market share had increased by 9.37 percent points (or an increase of 13.78 percent) between 1989 and 1997, whereas the critical concentration value only increased by 2.89 percent points between 1989 and 1997—or by 3.74 percent.

## **2. The evidence may be supportive of competition through quality, but this does not change our conclusion**

Peecher (2003) further argues that, given our research design, we have “difficulty discerning whether two (or more) explanations, such as market power and competition, are simultaneously operative” and that our analysis could pick up composite net effects of such explanations. It is indeed true that POWER picks up a composite net effect of market power and price competition and—if not properly controlled for—also other factors that POWER may be correlated with. However, given:

1. the specification of Research Question 2 in the paper<sup>2</sup>; and,
2. accordingly, the specification of the audit-fee model in Equation 2 (p. 17), including a YEAR dummy interaction variable to capture changes in the audit-pricing model;
3. the significant increase in Big 8/6 concentration between 1989 and 1997 (see p. 12, *t* tests of mean differences and Wilcoxon tests), suggesting an increase in Big 6 market power;
4. the significant drop in the coefficient on the POWER variable in the 1997 audit fee-model (see Table 5); as well as
5. the significant drop in the coefficient on the SWITCH variable, suggesting that pricing of initial engagements also decreased by 1997;

we are confident that the net effect captured is evidence of increased price competition between 1989 and 1997.

More challenging—indeed—is Peecher’s (2003) suggestion of a third element that could have been at work, namely competition through increased audit-quality differentiation. Audit

<sup>1</sup> The results are similar for the other market-share proxy used in the paper.

<sup>2</sup> “Has audit pricing become more competitive between 1989 and 1997? How did the impact of auditor market share and other significant determinants in the audit-pricing model change between 1989 and 1997?” (Willekens & Achmadi, 2003, p. 14).



quality is a broad and vague concept, typically proxied by auditor size in the literature (DeAngelo, 1981). If differentiation on audit quality indeed changed between 1989 and 1997, and this change is significantly correlated with the POWER variable, then the change in the coefficient of the POWER variable would capture a quality effect as well. However, this is only true if no control variables for quality differentiation were included in the model. Let's first assume that no such control variable was included in our model (note, by the way, that this would be consistent with ample prior research that captures audit quality empirically through an auditor-size variable). Would that actually harm our conclusion? No, as we'd still be able to conclude from the significant drop of the coefficient on POWER in 1997 that the net effect of all three factors (power, price, and quality) is in favor of increased price competition (see also argumentation above).<sup>3</sup>

However, we do accept the challenge to look for audit-quality proxies, other than auditor size, so that we can control for quality shifts. As mentioned by Peecher (2003), quality differentiation traditionally occurs through suggestions for improvement of internal controls, and, more recently, also through evaluation and communication of business risks and processes. As our analysis relates to privately owned Belgian companies that are rather small by U.S. standards (the average total assets figure for our sample companies is about 20 million Euro), we will focus on the (more traditional) internal control dimension of quality differentiation. Clearly, one of the control variables included in the audit fee model tested in the paper is associated with a client's internal control system, namely IAUD (i.e., presence of an internal audit department in the client firm). A reasonable conjecture is that many of our sample companies do not have very well developed internal control systems, given their size and ownership characteristics. We therefore believe that IAUD is a good proxy for the presence of a reasonably developed internal control system,<sup>4</sup> and, therefore, also for the likelihood that an auditor will perform control tests and thus be able to provide additional quality through advice on improvement of the system. Note that not much advice can be supplied in the absence of control testing. In terms of our audit-pricing analysis, a positive coefficient on IAUD would then suggest that additional advice on internal control improvements is valued in the market. It is worth noting that our analysis in Table 5 shows that IAUD had a negative coefficient in 1989, but a positive one in 1997, and that this change was significant. This is consistent with Peecher's suggestion that audit quality may have changed over the period 1989–1997.

### 3. Why 1989 versus 1997 makes sense

Given very profound changes in the audit environment during the 1990s, we believed that it was necessary to address audit pricing in a dynamic way, and not just replicate prior audit-fees studies. Our choice of 1989 and 1997 was the result of common sense and pragmatism,

<sup>3</sup> Note that prior audit-fee studies (e.g., seminal work by Simunic, 1980) looked at the net effects of various factors to draw conclusions about the degree of competition in the audit market.

<sup>4</sup> Note that monitoring is one of the components of internal control according to the COSO model (1992).

indeed (1) 1989 is the last year of audit-pricing data before the Big 8 became the Big 6; (2) 1997 was the last year before the Big 6 became the Big 5; and (3) prior evidence suggests that a sufficiently long observation period is required to allow for postmerger equilibration. So 1989–1997 seemed a rational choice, given that audit fee and some other data (such as, e.g., IAUD) are not publicly available but were collected manually. Peecher's (2003) suggestion to ascertain the validity of our results by testing them against randomly drawn pairs of years is—although appealing in concept—economically prohibitive. It is, however, a good suggestion for audit fee research in environments where fee data are publicly available, such as the UK and New Zealand.

#### 4. About management advisory services

Finally, Peecher (2003) suggests that a variable should have been included in the model to control for nonaudit fees paid to the incumbent auditor. This is indeed a very valid point, especially when sample firms are public and large, and the size of the nonaudit fees take huge proportions. But, since the firms in our sample are privately owned and reasonably small (average total assets amounts to 20 million Euro), the amount of advisory services purchased from audit firms is not very significant. One type of service that is acquired by our sample firms is tax consulting. However, in the Belgian market of small, closely held firms, most tax services are purchased from accountants and tax consultants. Note that accountants and tax consultants are not allowed to perform statutory audits in Belgium. Only members of the Institute of Auditors are certified to do so.<sup>5</sup>

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<sup>5</sup> Accounting, external auditing and tax consulting are three different professions in Belgium, which—by law—are licensed to provide different types of services to companies.



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# International comparative analysis of the association between board structure and the efficiency of value added by a firm from its physical capital and intellectual capital resources

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## Abstract

This study investigates the link between corporate board features and corporate performance for a sample of 286 publicly traded firms from South Africa (84 firms), Sweden (94 firms), and the UK (108 firms). Corporate board features considered are board composition, inside director ownership, duality and board size. In contrast to prior literature, performance is defined as the efficiency of value added (VA) rather than in financial terms. Further, the analysis examines the association between board features and efficiency of VA and each of the firm's physical capital (PC) and intellectual capital (IC), respectively. Finally, the present study analyzes the association between board features and corporate performance conjointly. Comparable to general findings from studies using U.S. data, the empirical analysis as a whole did not discern consistent significant link between the four board features and corporate performance across the three nations. However, individual board features are found to influence corporate performance in isolated cases. Overall, results provide evidence that even under different sociopolitical and economic conditions, governance needs vary across firms. Consequently, these findings do not lend support to the notion that uniform board structures should be mandated.

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*Keywords:* Efficiency value added; Board structure; Intellectual capital; Physical capital; Corporate governance

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## 1. Introduction

Corporate governance concerns in publicly listed firms with diffuse ownership are well known and long established (i.e., Berle & Means, 1932; Hermalin & Weisbach, 2001; Shleifer & Vishny, 1997). Financial scandals in various nations during the 1980s reignited debate—that continues to the present—on the most appropriate mechanisms for making corporate management more accountable to shareholders and other relevant stakeholders (Demirag, Sudarsanam, & Wright, 2000). Boards of directors have been at the epicentre of this debate (Bhagat & Black, 1999; Vafeas & Theodorou, 1998). Members of boards of directors have been extensively criticized for being complacent in their monitoring role, and/or relinquishing control to corporate managers who pursue their own self-interests (Dalton, Daily, Johnson, & Ellstrand, 1999). Also, boards of directors are accused of being remiss in their accountability to stakeholders (Coffey & Wang, 1998). Because poor corporate performance is viewed to be a major by-product of an ineffective board of directors, various corporate governance reform advocates frequently argue appropriate changes to its' composition, structure and ownership configuration<sup>1</sup> will enhance both corporate governance and corporate performance.

The association between board features and corporate performance has frequently been questioned, both in conceptual (i.e., Jensen & Meckling, 1976; Mace, 1972; Molz, 1995) and empirical studies (i.e., Daily & Dalton, 1994; Kesner, 1988; Kosnik, 1987). In this study we provide an international comparative analysis of the association between board features and corporate performance drawing on data (hand collected) from 284 publicly listed firms from South Africa (SA) ( $n=84$ ), Sweden ( $n=94$ ) and the UK ( $n=108$ ). Earlier studies (i.e., La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 1997; La Porta, Lopez-De-Silanes, Shleifer, & Vishny, 1998) clearly indicate that key elements of the corporate governance environment—such as the legal system and capital markets—vary across national boundaries. An international comparative analysis is, therefore, warranted since prior empirical research findings are generally derived using data solely from the United States (Vafeas & Theodorou, 1998).

Corporate governance guidelines published during the 1990s and early 2000s, however, often emphasized the concept of value added (henceforth denoted as *VA*) as a primary objective of a firm's board of directors. However, prior studies generally define corporate performance in financial terms with a small number applying societal level concepts (i.e., corporate social and environmental responsibility (Frankforter, Berman, & Jones, 2000)). In a departure from prior research, the present study empirically examines the association between board features and corporate performance, with performance defined as the efficiency of *VA*

<sup>1</sup> For the purposes of the present paper, board composition refers to the make-up of the board such as the number of directors and mix of inside and outside directors. The phrase board structure is utilized to designate particular structural characteristics that may include presence or absence of a standing committee and whether a single individual or two separate people undertake the roles of CEO and Chairperson of the board. Finally, board ownership configuration relates to the ownership levels of the board. This may include such features as the percentage of outstanding shares owned by inside or outside directors and presence or absence of a block holder on the board.

by a firm's total resource base (hereafter TVAE). Also, recognizing that a firm's resource base consists of physical capital (PC) and intellectual capital (IC), we conjecture that the different properties underlying PC and IC resources will lead corporate management to adopt dissimilar approaches to the use and application of each type of resource base. The influence of board features on corporate performance could then depend on the firm's mix of PC and IC resources. A unique feature of the present study, therefore, is extending the analysis to test for the association between board features and (1) efficiency of VA by a firm's PC—resources (hereafter TVAPC) and (2) efficiency of VA by a firm's IC—resources (hereafter TVAIC). We use the Value Added Intellectual Capital (VAIC) methodology (i.e., Pulic, 1998) to develop proxies for TVAE, TVAPC, and TVAIC.<sup>2</sup>

Finally, much of the extant literature generally examines the association between single board features and corporate performance. Vafeas and Theodorou (1998, p. 403) suggest that attempts to establish the existence of such association without controlling for the influence of other corporate governance characteristics may “lead to spurious relationships and misguided conclusions.” This study attempts to mitigate this concern.

SA, Sweden and the UK were selected for this study for several key reasons. First, during the 1990s and early 2000s corporate governance was a major issue for all three. New corporate governance guidelines and regulations were published in SA (*King Report I*, 1994; *King Report II*, 2002.), Sweden (*Corporate governance policy*, 1993, 2001) and the UK (*Cadbury Report*, 1992; *Turnball Report*, 1998) during this period. The goal was to enhance corporate monitoring and performance through the proper employment of more effective board features. It is important, therefore, to investigate the possible impact of such recommendations on corporate performance. Second, there is also a common historical link between corporate governance guidelines and regulations published in the three nations since 1992; specifically, the Cadbury Report (1992) has commonly been used as the initial point of reference in the construction of corporate governance guidelines and regulations. Third, an understanding and familiarity with the concept of IC is another reason for concentrating on SA, Sweden and the UK. Swedish firms, for example, are the acknowledged ‘forefathers’ in the development of the concept of IC and its recognition as a distinctive discipline (Bontis, 1998, 2000). Since the mid-1990s IC has established a strong and growing presence in both the SA and the UK business and political environment (Mouritsen, Larsen, & Bukh, 2001; Williams, 2001). Fourth, the concept of VA features prominently in each nation's social, scholarly, and business environments (Stainbank, 1997; Van Staden, 1999). For example, at the time of the present study, SA firms voluntarily provided more value-added statements than any other nation while the vast bulk of academic research on this concept emerged from the UK (Van Staden, 2000). Finally, the developed capital market and financial reporting environments in SA, Sweden, and the UK have enabled collection of relevant data from a relatively sizeable number of economically significant firms in each nation. Whilst there are

<sup>2</sup> Whilst the empirical results and discussion reported in the present study primarily focus on proxies developed in line with the VAIC methodology, a comparison with findings using traditional market- and accounting-based measures of corporate performance is also provided in the Results section.



dissimilarities among these three nations, such as in the legal system and state of economic development, this should not have an adverse effect on this study. The remainder of this paper is organized as follows: Section 2 provides an overview the corporate governance environment in SA, Sweden and the UK. A discussion of the potential influence of board features on the efficiency of VA by a firm's combined resources and that by the major resource elements of a firm—PC and IC—follows. Testable hypotheses are also developed in this section. An outline of the research design and descriptive statistics related to the sample data is then presented in Section 4. Empirical results are then reported. In the concluding section, ideas for future research are discussed.

## **2. Overview of corporate governance in South Africa, Sweden and United Kingdom**

There is presently a lack of consensus on a precise definition of corporate governance. For the purposes of the present study, corporate governance is viewed to encompass the dimensions of law, regulation and suitable voluntary corporate practice that enables the “corporation to attract financial and human capital, perform efficiently, and thereby perpetuate itself by generating long-term economic value for its shareholders, while respecting the interests of stakeholders and society as a whole” (Gregory, 2001a, p. 1). Given key dimensions, such as the legal order and regulatory environment vary between countries, studying corporate governance practices across national boundaries is of interest. Table 1 is a summary of major features of the corporate governance system and factors influencing practices in SA, Sweden and the UK.

La Porta et al. (1997, 1998), argue that the legal order is a key institutional determinant of the development of corporate governance practices and of understanding of related enforcement regulations. In the UK, Common law—based on precedents established by courts—is the primary source of legal principles and rules, while statutory law forms the cornerstone of legal principles and rules in Sweden. Conversely, legal principles and rules in SA are dually influenced by the major codification practices of Roman–Germanic (Dutch) law and case law of the Common law legal system. Also, the extent of shareholder and creditor rights may influence corporate governance practices (La Porta et al., 1997, 1998). Shareholder rights in SA and the UK are quite comparable, although levels are slightly lower in Sweden. Creditor rights are lowest in Sweden and highest in the UK (La Porta et al., 1997, 1998). In sum, corporate management and boards of directors of UK firms are more likely than SA or Sweden to face greater pressure to ensure achieving appropriate corporate governance practices and standards. This difference is likely due to greater protection and enforceability of shareholder rights and creditor rights.

The quality of a nation's accounting profession and standards and the resulting financial transparency are other measures of corporate governance effectiveness. According to La Porta et al. (1997, 1998), the quality of accounting standards is highest in Sweden and lowest in SA. This implies financial transparency is likely to be more extensive amongst Swedish firms followed by those in the UK and SA. Prior research suggests ownership structure influences corporate governance practices. For example, ownership diffusion can extrapolate managerial



opportunism while block holdings may enhance (or impede) the monitoring of corporate management (Frankforter et al., 2000). The level of ownership amongst firms is most diffused in the UK with SA having the highest concentration of ownership.

Unlike Companies Acts and related regulations in SA, in Sweden and the UK, specific guidelines designed to formally institutionalize corporate governance practices were published during the 1990s and early 2000s. It is argued that compliance with these guidelines may depend in part on (1) the agency issuing the guidelines, (2) whether guidelines were appended to any institutional requirements and (3) disclosure requirements. In Sweden, guidelines were developed by private agencies not supported or appended to the requirements of a major institutional body (such as the stock exchange) and compliance is purely voluntary. The Johannesburg Stock Exchange (JSE), a private body, also strongly supported the development of guidelines in SA with recommendations of the *King Report I* (1994) and II (2002) appended to the listing requirements of the JSE. Also, debtor firms are required to disclose the extent of compliance with *King Report I* (1994) and II (2002) guidelines. In the UK, development of recent guidelines were initiated by major institutional bodies such as the London Stock Exchange (1998) and Institute of Chartered Accountants in England and Wales. As in SA, UK guidelines—condensed into the Combined Code: Principles of Good Governance and Code of Best Practice (1998)—are appended to the listing requirements of the London Stock Exchange. Also, UK firms are required to disclose their compliance with these guidelines.

Various recommendations arising from these reports cover issues relevant to the present study. These include the objective of the board, board size, board composition and leadership structure. In respect to the objective of the board, Swedish and UK guidelines emphasize the main duty of the board is to promote shareholders' interests and maximize shareholder value. Guidelines in SA also acknowledge a board's responsibility to shareholders but the overall objective stresses the need for boards to act in the interests of a wider range of stakeholders. Of the three nations included in the present study, only Swedish guidelines make direct recommendations on the size of the board. Conversely, guidelines in all three nations express a preference for the board of directors to contain an appropriate balance of executive and nonexecutive (affiliated and independent) directors. Swedish guidelines, however, express greater need for nonexecutive director representation in particular as firm size increases. Finally, guidelines in each nation place heavy emphasis on the segregation of the positions of chief executive officer (CEO) and Chairperson to minimize duality related conflicts.<sup>3</sup>

### 3. Prior literature, theory and hypothesis development

Generally, the majority of empirical studies examining corporate performance links have defined corporate performance primarily within financial terms and used either financial accounting or market-based measures as proxies for corporate performance. Few studies seek

<sup>3</sup> Duality refers to the situation when an executive holds both the position of chief executive officer (CEO) and Chairperson of the board.

Table 1  
Summary of major corporate governance characteristics and guidelines in SA, Sweden and UK

Panel A	South Africa	Sweden	United Kingdom
Legal system	Mixed jurisdiction—English common law and Roman—Dutch law	Roman—Germanic law – Scandinavian	English Common law
Level of shareholder rights <sup>a</sup>	5	3	5
Level of creditor rights <sup>a</sup>	3	2	4
Rating on accounting standards <sup>a</sup>	70	83	78
Ownership concentration <sup>a</sup>	52%	28%	20%
Primary source of Corporate Governance Guidelines and Recommendations during 1990s and into 2000s <sup>b</sup>	<i>King Report II</i> (2002)—King Report on corporate governance for South Africa; <i>King Report I</i> (1994)—King reports form basis of <i>The Code of Corporate Practices and Conduct</i>	<i>Corporate governance policy</i> (1993, 2001); <i>Introduction to a Swedish code of good boardroom practice</i> (1994)	Combined code: Principles of good governance and Code of best practice; Cadbury Report (1992); Turnbull Report (1998)
Primary body issuing guidelines during 1990s and into 2000s	Institute of Directors of Southern Africa	Swedish Shareholders' Association; Swedish Academy of Directors	London Stock Exchange
Links of guidelines published during 1990s and into 2000s to regulatory requirements	Appended to Johannesburg Stock Exchange listing requirements; obligated firms must provide statement commenting on extent of compliance with <i>The Code</i> (JSE Listing Requirement 852 (a))	Compliance with guidelines is strictly voluntary and no disclosure requirements on level of compliance	Combined Code appended to London Stock Exchange Listing Rules; each listed firm must disclose how applied Combined Code principles and complied with provisions (Listing rules, 12.43A(a) and (b))
Panel B	South Africa	Sweden	United Kingdom
Board structure	Unitary	Unitary	Unitary
Objective of the board	Stakeholder emphasis—maximize shareholder value whilst protecting and advancing interests of other stakeholders	Shareholder emphasis—maximize shareholder value. Role of stakeholders not covered	Shareholder emphasis—maximize shareholder value. Role of stakeholders not covered

Size of the Board	Not covered directly	Depends on size of firm, its organization, type and direction. Corporate Governance Policy, however, suggests 6–9 people	Not covered
Mix of Directors	Board needs to be balanced with at least equitable number executive and nonexecutive directors; boards should at minimum have no less than two nonexecutive directors of sufficient caliber	Depends on size—generally, as firm size increases there is a strong recommendation for greater representation of nonexecutive (affiliated and independent) directors	Board should comprise a balanced mix of executive and nonexecutive directors so no individual or small group of individuals can dominate decision making (The Combined Code, Principle A.3)
Meaning of independence	Independent of management and have not contractual nexus with firm for reward	Not covered	No relationship to management and free from any business or other relationship which could materially interfere with role
Board and corporate leadership	Chair should, unless considered not in firm's interests, be a nonexecutive director of firm and should not be chief executive	Separation of CEO and Chairperson position not directly covered	Recommends separation of CEO and Chairperson roles
Board committees	Establish audit, nomination and remuneration committee	Establish audit, nomination and remuneration committee	firms combining two positions must publicly justify decision
Ownership of directors	Not covered	Stresses importance of directors to participate as owners having share holdings in firm	Establish audit, nomination and remuneration committee Not covered

<sup>a</sup> La Porta et al. (1997, 1998).<sup>b</sup> Other major source include Gregory (2001a, 2001b).



to analyze the association between board features and corporate performance within the context of VA (i.e., Morck, Shleifer, & Vishny, 1988; Hermalin & Weisbach, 1991). The concept of VA (also referred to as wealth creation)<sup>4</sup> is increasingly viewed as the primary objective of a firm more so than financial performance. Clarkson (1994, p. 21), for example, states that the “purpose of the firm is to create wealth or value for its stakeholders by converting their stakes into goods and services.” Some corporate governance advocates highlight the potential association between board features and VA. Blair (1995, p. 322) argues that it is critical for VA “to enhance the voice of and provide ownership-like incentives to those participants in the firm who contribute or control critical, specialized inputs and to align the interests of these critical stakeholders with the interests of outside, passive shareholders and other related stakeholders.” The voice of key participants, for instance, could be enhanced through suitable representation on the board of directors. In the case of executive directors, ownership incentives may help align their interests with shareholders and other important stakeholders.

Prior research indicates corporate managers are generally risk-averse due to their dependence on the firm for their immediate livelihood (Vafeas & Theodorou, 1998). With a preference for reducing uncertainty, corporate managers are likely to support policies and strategies related to PC than IC resources because they are better able to directly control the former (Mahnke, 1997). This condition arises because ownership in PC resources is attributed to shareholders who then pass responsibility for their use to corporate management. Consequently, control of IC resources may not be within the direct power of a corporate manager. Without direct control, corporate managers have less ability to apply *ex ante* monitoring criteria and cannot as easily make adjustments on a continuous basis to reduce uncertainties (Mahnke, 1997). Another personal characteristic of corporate managers is their myopic nature (Vanes & Theodorou, 1998). From a time horizon perspective, VA generated from PC resources is likely to take less time than VA generated from IC resources. IC resources cannot be purchased via business transactions and require lengthy periods of development and refinement offering few guarantees of becoming operational (Mahnke, 1997). Under enormous pressure to produce immediate results, “short terms” may lead corporate managers to avoid investing in IC resources.

A review of the literature indicates four major board features—representation or compositions (proportion of outside directors and board size), structure (duality) and ownership (percentage of inside ownership)—often thought to influence corporate performance. The following subsections reviews the theoretical and empirical literature related to these four boards features in developing hypotheses relevant to an association with TVAE, TVAPC and TVAIC.

### *3.1. Proportion of outside directors on a firm's board of directors*

The proposition that outside directors are instrumental in guiding a firm's performance is supported by several theoretical perspectives (including agency theory, resource-dependence

<sup>4</sup> Formally, VA was defined as the wealth created (or contributed) by the firm through the utilization of its key productive resources (Suojanen, 1954; Van Staden, 1998).

theory and stakeholder theory) and has been the central emphasis of various recent corporate governance guideline publications (e.g., Cadbury Report, 1992; *King Report I*, 1994). From a stakeholder perspective, stakeholder orientations are likely to be more diversified amongst outside directors relative to inside directors (Young, Stedham, & Beekun, 2000). Also, outside directors are often hired to assist in managing a firm's various stakeholders (Johnson & Greening, 1999; Pfeffer, 1973). Finally, as Wang and Dewhirst (1992, p. 120) state, "outside directors have a very strong stakeholder orientation, and recognize that their responsibility encompasses more than shareholders and are very conscious about the needs and expectations of the various constituencies of their firms." Outside directors also have vested interest in fulfilling their responsibilities; they need to protect their "reputation-capital" so as to enhance future directorship opportunities. In contrast, inside directors have strong self-interest orientations as they rely on the firm for their immediate livelihood (Johnson et al., 1993; Zahra & Pearce, 1989).

While the above reasoning appears compelling, the empirical results of association between the proportion of outside directors and corporate performance are mixed. Rosenstein and Wyatt (1990, 1997) find positive excess returns following the announcement of the appointment of an outside director, which is supported by Byrd and Hickman (1992); Mayers, Shivdasani, Smith (1997) and Weisbach (1988). There is a suggestion that these findings are due to sample selection, which is conditioned to events potentially requiring good decision-making, a major function of outside directors (Frankforter et al., 2000). In contrast, large cross-sectional studies fail to indicate any relationship (Agrawal & Knoeber, 1996; Hermalin & Weisbach, 1991). Finally, other empirical findings show that inside directors, rather than outside directors, are essential to corporate performance (i.e., Cochran et al., 1985; Kesner et al., 1986; Singh & Harianto, 1989). Despite conflicting empirical results, it is important in the current environment to analyze the association between the proportion of outside directors and corporate performance in settings other than that of the United States, and using other concepts of performance. Therefore, consistent with the stakeholder perspective, we propose the following hypotheses:

**Hypothesis 1a:** There is a positive association between the proportion of outside directors to total directors of publicly listed firms in SA, Sweden, and UK and TVAE.

**Hypothesis 1b:** There is a positive association between the proportion of outside directors to total directors of publicly listed firms in SA, Sweden, and UK and TVAPC.

**Hypothesis 1c:** There is a positive association between the proportion of outside directors to total directors of publicly listed firms in SA, Sweden, and UK and TVAIC.

### 3.2. *Ownership concentration of inside directors of a firm's board of directors*

Inside directors form a significant stakeholder group contributing critical specialized inputs. Under the stakeholder framework the provision of ownership-like incentives to inside



directors helps align perceptions with the interests of other stakeholder groups. Zahra, Oviatt, and Minyard (1993) suggest ownership gives greater motivation to inside directors to develop better strategies allowing for effective resource allocation to the different stakeholders of a firm. Hansen and Hill (1991) argue that ownership incentive realignment motivates inside directors to forgo short-term returns for long-term projects and strategies. Johnson and Greening (1999, p. 570), further state that ownership inspires inside directors to “maintain or improve product quality and innovation through increased R&D spending.” Finally, Finkelstein (1992) argues that ownership empowers inside directors, enabling them to generate new business incentives and strategies, increase innovation and enable the firm to adapt more quickly to a changing environment.

As with the case of outside directors the empirical evidence on inside directors is mixed. Some studies have reported no association (Demsetz & Lehn, 1985; Leech & Leahy, 1991; Vafeas & Theodorou, 1998). In contrast, the empirical findings of McConnell and Servaes (1990) and Conyon and Leech (1994) report a positive relationship. Alternatively, the empirical findings of Morck et al. (1988) imply an elliptical relationship. That is, as inside directors' ownership increased to approximately 5% of total outstanding shares, corporate performance improved. For ownership levels between 5% and 25% there was a decline whilst ownership above 25% again showed improved corporate performance. Given these inconsistent results, based largely on US data, we propose the following hypotheses:

**Hypothesis 2a:** There is a positive association between the percentage of inside directors' ownership of publicly listed firms in SA, Sweden and UK and TVAE.

**Hypothesis 2b:** There is a positive association between the percentage of inside directors' ownership of publicly listed firms in SA, Sweden and UK and TVAPC.

**Hypothesis 2c:** There is a positive association between the percentage of inside directors' ownership of publicly listed firms in SA, Sweden and UK and TVAIC.

### *3.3. Leadership structure (duality)*

The impact of duality on corporate performance is of interest to advocates of various schools of thought (i.e., Dalton & Kesner, 1985; Hambrick & Mason, 1984; Patton & Baker, 1987). From a stakeholder perception, duality seriously impedes the overall stakeholder orientation of members of the board. Sonnenfeld (1981), for example, argues that executives acting as both CEO and Chairperson are biased in their stakeholder orientations toward corporate management. That is, the joint CEO/Chairperson is likely to support the implementation of policies benefiting corporate management at the expense of other stakeholders (Ford & McLaughlin, 1984). Also, both the positions of CEO and Chairperson are positions of considerable power. Combining them enables the joint CEO/Chairperson to establish greater strategic influence and power that may intimidate other directors. Consequently, other board members may be reluctant to support strategies and policies contrary to the interests of corporate management for fear of incurring the disapproval of their leader (Mallette & Fowler,



1992). Dividing the positions of CEO and Chairperson of the Board disperses power and authority, thereby enhancing the board of directors' ability to effectively implement decisions addressing the interests of a more diverse set of stakeholders (Wang & Dewhirst, 1992). Finally, eliminating duality enhances the board's information-processing capacities by enabling more key people to be involved in the decision-making process (Sanders and Carpenter, 1998).

Empirical research offers limited inconclusive findings on duality. Rechner and Dalton (1991) and Pi and Timme (1993), for example, find firms separating the two roles consistently outperformed counterparts that combined the two positions. Brickley, Coles, and Jarrell (1997) and Vafeas and Theodorou (1998) find contradictory results, however, to further investigate the aforementioned association the following hypotheses are formed based on the foregoing arguments:

**Hypothesis 3a:** There is a negative association between the same director jointly holding the roles of CEO and Chairperson of publicly listed firms in SA, Sweden, and UK and TVAE.

**Hypothesis 3b:** There is a negative association between the same director jointly holding the roles of CEO and Chairperson of publicly listed firms in SA, Sweden, and UK and TVAPC.

**Hypothesis 3c:** There is a negative association between the same director jointly holding the roles of CEO and Chairperson of publicly listed firms in SA, Sweden, and UK and TVAIC.

### 3.4. *Size of the board of directors*

While there are suggestions for finding an association between board size and corporate performance (i.e., Alexander, Fennell, & Halpern, 1993; Kidwell & Bennett, 1993; Provan, 1980), no consensus exist, as to the direction of this association. Advocates of the stakeholder perspective generally support a positive association. A larger board allows greater balance, thereby, promoting more effective decision making while increasing harmony between a firm's stakeholders. Finally, a larger board enhances information-processing capabilities and the quality of advice given to corporate management (Zahra and Pearce, 1989).

Alternatively, agency theorists generally argue for smaller boards reasoning that as size increases control and monitoring functions are impaired (Dalton et al., 1999; Judge & Zeithaml, 1992). Agency theory advocates also argue that larger board size increases the opportunity for manipulation by corporate management. For example, Jensen (1993, p. 865) state that when "boards get beyond seven or eight people they are less likely to function effectively and are easier for the CEO to control." Finally, some suggest larger board size leads to less participation and cohesion among members, thus, diminishing the ability to achieve a consensus on control decisions (Evans and Dion, 1991; Lipton and Lorsch, 1992).

Empirical analysis has failed to resolve the theoretical debate surrounding the association between board size and corporate performance. Burt (1980), and Bazerman and Schoorman (1983), for example, state that larger boards are able to establish far

greater interlocks with stakeholders processing resources vital to the firm. These affiliations enable firms to operate more effectively. Similarly, Chaganti et al. (1985) find that the boards of firms filing for Chapter 11 bankruptcy protection are smaller in size than a matched sample of nonfailing firms. They concluded that larger board size is more effective in preventing corporate failure than is the case for smaller boards. Conversely, Yermack (1996) shows that higher market evaluation, as well as higher returns on assets and returns on sales, are associated with firms having smaller boards. Yermack (1996) concludes that any benefits associated with large board size are undermined by poor communication and decision-making processes. Given the inconsistent empirical results, further investigation of board size and corporate performance links is required. Based on the foregoing arguments it is hypothesized that,

**Hypothesis 4a:** There is a positive association between the number of members of the board of directors of publicly listed firms in SA, Sweden, and UK and TVAE.

**Hypothesis 4b:** There is a positive association between the number of members of the board of directors of publicly listed firms in SA, Sweden, and UK and TVAPC.

**Hypothesis 4c:** There is a positive association between the number of members of the board of directors publicly listed firms in SA, Sweden, and UK and TVAIC.

## 4. Research method

### 4.1. Measure of dependent variables

The Value Added Intellectual Coefficient (VAIC) methodology developed by Pulic (1998) forms the measurement basis for the three dependent variables in the present study. VAIC is an analytical procedure designed to enable management, shareholders and other relevant stakeholders to effectively monitor and evaluate the efficiency of VA by a firm's total resources as well as each major resource component. Formally, VAIC is a composite sum of three indicators formally termed (1) Capital Employed Efficiency (CEE)—indicator of VA efficiency of capital employed; (2) Human Capital Efficiency (HCE)—indicator of VA efficiency of human capital; and (3) Structural Capital Efficiency (SCE)—indicator of VA efficiency of structural capital. Eq. (1) formalizes the VAIC relationship algebraically:

$$VAIC_i = CEE_i + HCE_i + SCE_i \quad (1)$$

Where  $VAIC_i$  = VA intellectual coefficient for company  $i$ ;  $CEE_i$  = VA capital employed coefficient for company  $i$ ;  $HCE_i$  = human capital coefficient for company  $i$ ; and  $SCE_i$  = structural capital VA for company  $i$ .



Pulic (1998), states that the higher the VAIC coefficient, the better the efficiency of VA by a firm's total resources. The first step in calculating CEE, HCE and SCE is to determine a firm's total VA. This calculation is defined by the following relationship<sup>5</sup>:

$$VA_i = I_i + DP_i + D_i + T_i + M_i + R_i \quad (2)$$

Where VA for firm  $i$  computed as the sum of interest expenses ( $I_i$ ); depreciation expenses ( $DP_i$ ); dividends ( $D_i$ ); corporate taxes ( $T_i$ ); equity of minority shareholders in net income of subsidiaries ( $M_i$ ); and profits retained for the year ( $R_i$ ).

Pulic (1998) also states that CEE is:

$$CEE_i = VA_i / CE_i \quad (3)$$

Where  $CEE_i$  = capital employed efficiency coefficient for company  $i$ ;  $VA_i$  = VA for firm  $i$  (see formal definition above); and  $CE_i$  = book value of the net assets for firm  $i$ .

Consistent with views of Edvinsson (1997) and Pulic (1998); Sveiby (2001) argues total salary and wage costs are an indicator of a firm's human capital (HC). HCE, therefore, is calculated as:

$$HCE_i = VA_i / HC_i \quad (4)$$

Where  $HCE_i$  = human capital efficiency coefficient for company  $i$ ;  $VA_i$  = VA for firm  $i$  (see formal definition above); and  $HC_i$  = total investment salary and wage for firm  $i$ .

To calculate SCE, it is first necessary to determine the value of a firm's structural capital (SC) which Pulic (1998) proposes as:

$$SC_i = VA_i - HC_i \quad (5)$$

Where  $SC_i$  = structural capital for company  $i$ ;  $VA_i$  = VA for firm  $i$  (see formal definition above); and  $HC_i$  = total salary and wage costs for firm  $i$ .

Pulic (1998) argues there is a proportionate inverse relationship between HC and SC. Consequently, Pulic (1998) proposes calculating SCE as:

$$SCE_i = SC_i / VA_i \quad (6)$$

Where  $SCE_i$  = structural capital efficiency coefficient for company  $i$ ;  $SC_i$  = structural capital for company  $i$ ; and  $VA_i$  = VA for firm  $i$  (see formal definition above).

<sup>5</sup> Prior research has defined VA by the following algebraic equation:  $Rev - B + Inv = W + I + DP + D + T + M + R$  [Eq. (7a)] or  $S - B + Inv - DP = W + I + DP + D + T + M + R$  [Eq. (7b)].  $W$  refers to total salary and wage expense. Eq. (7a) is commonly referred to as the gross VA and Eq. (7b) is termed the net VA. Theoretical arguments have been forwarded supporting both approaches. Empirical research indicates both methods have been used in practice. Pulic (1998) argues that because of the central active role human resources plays in the value creation process, labour costs (wages expense) should not be included in VA computations. This view is consistent with the opinions of other IC experts (Edvinsson, 1997; Sveiby, 2000).



For this study, VAIC scores are a proxy for TVAE; CEE scores proxy for TVAPC; and the sum of HCE and SCE scores proxy for TVAIC. Appendix A presents a formal illustration of the calculation of each dependent variable using the VAIC methodology.

Apart from encompassing the concept of VA and enabling one to decipher the VA efficiency of a firm's PC and IC resources, several other major reasons underscore the use of the VAIC methodology. First, VAIC provides a standardized and consistent basis of measure (Pulic & Bornemann, 1999), and thereby, enables the effective conduct of an international comparative analysis. Alternative IC measures are limited (Roos, Roos, Dragonetti, & Edvinsson, 1997; Sullivan, 2000) and the ability to apply alternative IC measures consistently across a large and diversified sample for comparative analysis is diminished.

Second, all data used in the VAIC calculation are based on audited information; therefore, the calculations can be considered objective and verifiable (Pulic, 1998, 2000). Other IC measures have been criticized due to subjectivity in measurement and difficulty in verification (Sveiby, 2000; Williams, 2001). Third, VAIC is a straightforward technique that enhances cognitive understanding and enables ease of calculation by various internal and external stakeholders (Schneider, 1999). Finally, the VAIC methodology is receiving more attention in research and application (see, e.g., Bornemann and Franzen, 1998; Nova Kreditna banka Maribor, 2000; Williams, 2001).

#### 4.2. *Proxy measures for independent variables and control factors*

In addition to the four independent variables, five control factors (profitability, leverage, dividend yield, industry type, and firm size) are included in all the multiple regression analysis. Standard proxies, identified from a review of the literature (i.e., Daily & Dalton, 1994; Mallette & Fowler, 1992; Oviatt, 1988; Vafeas & Theodorou, 1998; Young et al., 2000) are used to measure the independent variables and control factors in this study. Each proxy is formally defined below, plus the expected directional relationship with the dependent variables:

1. *Percentage of outside directors on the board (PerOutDir)*: number of directors on the board, not directly employed with or have professional ties with the firm, as a percentage of total board size—positive relationship with dependent variable;
2. *Percentage of outstanding shares owned by inside directors (PerInsOwn)*: ratio of number of outstanding common shares held by directors to the total number of outstanding common shares of the firm—positive direction with dependent variable;
3. *Leadership structure of the board (Duality)*: dummy variable with firms having the same individual acting as the CEO and chairperson of the board being scored a one, otherwise a zero—negative relationship with dependent variable;
4. *Board size (Board Size)*: number of directors serving on the board—negative relationship with dependent variable;
5. *Profitability (ROA)*: ratio of the net income (less preference dividends) divided by total assets as reported in the 1998 annual report—positive relationship to dependent variable;
6. *Leverage (Leverage)*: total debt divided by total shareholders' equity as reported in each firm's annual report—negative relationship to dependent variable;

7. *Dividend yield (Dividend Yield)*:—percentage of cash dividends paid during 1998 divided by total shareholders' equity—positive relationship to dependent variable;
8. *R&D sensitivity (Industry Type)*: dummy variable with firm's determined to be R&D intensive<sup>6</sup> coded a one (1), otherwise coded a zero (0) (Sanders & Carpenter, 1998; Wruck, 1993)—positive relationship to dependent variable; and
9. *Firm Size (Size of the Firm)*: natural log of annual sales as reported in each firm's annual report—positive relationship to dependent variable.

#### 4.3. Sample data

Data were hand-collected from 1998 fiscal year annual reports<sup>7</sup> of publicly traded firms listed on the Johannesburg (SA), Stockholm (Sweden) and London (UK) stock exchanges. Consistent with prior research, financial and utility sector firms were excluded (Firth, Lohne, Ropstad, & Sjo, 1996; Vafeas & Theodorou, 1998). Various techniques—direct contact, database, and website searches—were used to collect the final useable sample of 286 (84 in SA; 94 in Sweden; and 108 in UK) annual reports.<sup>8</sup>

Table 2 reports descriptive statistics for the dependent and independent variables and control factors for the sample as a whole (Panel A) and by nation (SA—Panel B; Sweden—Panel C; and UK—Panel D). Descriptive statistics related to the independent variables indicate that board structures vary among SA, Sweden, and UK. The average (median) percentage of outside directors (*PerOutDir*) is 51.91% (52.79%) in SA, 78.29% (81.46%) in Sweden and 48.50% (42.57%) in UK. Compared to the United States, the proportion of outside directors is lower in SA and UK but higher in Sweden. Average *PerInsOwn* in SA, Sweden, and UK is 9.70%, 1.75%, and 6.42%, respectively. Median values (2.98%—SA; 0.05%—Sweden; and 0.11%—UK) indicate, however, that *PerInsOwn* values are heavily skewed to the right. *PerOwnIns* in SA, Sweden, and UK are generally lower than that reported for US firms. *Duality* is most prominent in SA (61.43% with same CEO/Chairperson) closely followed by the UK (53.70%). These proportions are similar to the United States (i.e., Roa & Lee-Sing, 1995; Klein, 1998, 2002). Comparatively, Swedish firms (20.64%) show a greater propensity to segregate the two roles of the Chairperson and CEO. Finally, average *Board size* in SA (13.02) is moderately higher than in the United States, but is comparable in both Sweden (9.28) and UK (9.54).

Overall, firms in the sample have reasonably high *ROA* values. Average *Leverage* levels are also relatively similar. Comparatively, UK firms generally paid more dividends per unit of shareholders equity than firms in SA and Sweden. Across the entire sample, approximately three out of five firms were coded “R&D Intensive”, with Sweden having the

<sup>6</sup> A firm was defined as being R&D sensitive if it separately disclosed the amount of R&D expense in their annual report.

<sup>7</sup> In SA and Sweden the 1998 fiscal year was generally from 1/1/1998 to 31/12/1998 whilst in UK it was from 1/4/1998 – 31/3/1999. The time difference is not considered detrimental to the results of this study as no significant events occurred that may have unduly influenced the findings.

<sup>8</sup> Nonresponse tests were conducted to determine if there were any significant differences between companies from the original 240 companies selected that were included in the final survey to those excluded. Statistical tests showed no significant variations. Consequently, it was concluded there was no significant nonresponse bias.



Table 2  
Descriptive statistics on independent regression variables, control factors and the dependent variable and its components

	Panel A—Whole sample (n=286)			Panel B—SA firms only (n=84)			Panel B—SA firms only (n=84)		
	Mean	Median	S.D.	Mean	Median	S.D.	Mean	Median	S.D.
<i>Independent variables</i>									
Percentage Outside Directors	59.29%	62.50%	41.96%	51.91%	52.79%	15.57%	78.29%	90.00%	9.62%
Percentage Inside Directors	5.85%	0.21%	13.70%	9.70%	2.98%	13.45%	1.75%	0.05%	4.90%
Directors Ownership*									
Duality	45.10%	N/A	N/A	61.43%	N/A	N/A	20.64%	N/A	N/A
Board Size	10.47	11.00	4.29	13.02	12.00	5.33	9.28	10.00	2.42
<i>Control factors</i>									
ROA	10.74%	8.41%	17.43%	12.77%	10.74%	27.69%	8.49%	5.02%	5.61%
Leverage	25.40%	56.48%	21.09%	25.25%	21.35%	21.69%	29.11%	54.14%	17.52%
Dividend Yield	7.04%	3.75%	10.28%	3.84%	2.07%	5.40%	4.31%	3.73%	4.54%
Industry Type	59.50%	N/A	N/A	45.71%	N/A	N/A	69.57%	N/A	N/A
Size of the Firm (Sales US\$)	859.4	1488.3	2015.3	718.0	890.4	2156.4	1584.8	256.0	4683.2
<i>Dependent variables</i>									
TVAIC	2.456	2.150	2.456	2.910	2.279	1.791	1.850	1.552	3.217
TVAPC	1.690	1.450	4.863	1.359	0.748	2.322	0.840	0.502	0.829
TVAE	4.146	3.110	6.270	4.270	3.450	2.418	2.690	2.485	3.447

\* One if CEO is Chairperson; zero otherwise.



highest proportion of “R&D Intensive” firms whilst SA has the lowest proportion. Finally, average sales turnover was highest amongst UK firms followed by Sweden.

The efficiency of total VA of a firm’s combined resource base is, on average highest in UK followed by SA. In SA and Sweden, IC is the most significant resource base contributing to the efficiency of VA, whilst in the UK it is PC. Relative to prior VAIC studies<sup>9</sup> for the same period as this study: SA values are comparable, Swedish values generally lower and UK slightly higher. Univariate analysis tests (independent Student *t* test and Mann–Whitney *U* test)<sup>10</sup> indicate that the national TVAE, TVAPC, and TVAIC means in Sweden were significantly lower than national means in SA and UK. Differences between national means for TVAE, TVAPC, and TVAIC in SA and UK, however, are not statistically significant.

## 5. Results

### 5.1. Correlation analysis

Pearson correlations reported in Table 3 do not exceed .340. Also the variance inflation factor (VIF) values (calculated with every multiple regression model performed) not exceed 3.00. All VIF values are substantially below the critical value of 10.00 (Netter et al., 1989). Based on Pearson correlations and VIF values, multicollinearity does not appear to be a serious concern<sup>11</sup>.

### 5.2. Tests of 1a, 2a, 3a and 4a

Table 4 presents the results of three multiple regression models with TVAE as the dependent variable. Each regression model is statistically significant ( $P < .01$ ) with the UK sample firms (see Table 4, Panel C) explaining the highest proportions of variation in TVAE (40.3%) and SA sample firms (see Table 4, Panel A) explaining the lowest (26.2%). The coefficients on *Duality* are statistically significant and negative in all three regressions in Table 4 ( $P < .05$ ). Amongst the other three independent variables, coefficients were only moderately statistically significant in two isolated cases. First, the coefficient for *PerOutDir* is positive and statistically significant ( $P < .10$ ) in the regression for SA sample firms only (see Table 4, Panel A). Second, the coefficient for *PerInsOwn* is positive and statistically significant ( $P < .10$ ) in the regression for the Swedish sample firms only (see Table 4, Panel

<sup>9</sup> Pulic (2000), for example, studied 30 firms randomly selected from the FTE-250. The average VAIC score for these firms in 1998 was 4.712. The average VAIC score of 70 publicly traded firms from Austria for 1997 was 3.981. From a sample of 42 banks from Croatia the average VAIC score was approximately 4.90.

<sup>10</sup> Tests not reported in body of paper for brevity. Results can be obtained from the authors.

<sup>11</sup> To further test for multicollinearity, a series of multiple regression models were performed whereby a single independent variable or control factor was excluded from one model but subsequently included in the remainder. The purpose of these regression models was to determine if the exclusion of an independent variable or control factor altered the significance and directional sign on the coefficients of the remaining independent variables and control factors. Findings from these regressions show no significant changes; thus providing further support that multicollinearity was not a concern.

Table 3  
Bivariate Pearson moment correlations

	Independent variables				Control factors			
	VIF	PerOutDir	PerInsOwn	Duality	Board Size	ROA	Leverage	Dividend Yield
PerOutDir	1.912	1.000						
PerInsOwn	1.011	-0.089	1.000					
Duality	2.312	0.191	0.207	1.000				
Board size	1.423	-0.256	-0.105	0.174	1.000			
ROA	1.201	0.044	0.122	0.045	0.025	1.000		
Leverage	2.101	-0.011	-0.103	0.083	0.008	-0.255	1.000	
Dividend yield	1.734	-0.054	-0.032	-0.075	-0.046	0.193	0.150	1.000
Industry type	1.821	0.251	-0.110	0.029	0.014	0.025	0.044	-0.022
Size of the firm	2.981	0.332	-0.202	-0.027	-0.039	-0.030	-0.321	0.155

VIF values reported in Table 3 are calculated from a regression model including all independent variables and control factors with TVAE as the dependent variable and all sample firms (see Table 4, Panel A). VIF values were also calculated for regression models with TVAFC and TVAIC as the dependent variable and/or using sample firms from a select nation; VIF values from the additional regressions did not exceed 3.00.

Table 4

Multiple regression of the entire sample and VAIC

General model: $TVAE_i = \alpha_i + \alpha_{1i} PerOutDir_i + \alpha_{12} PerInsOwn_i - \alpha_{13} Duality_i + \alpha_{14} Board Size_i + \alpha_{15} ROA_i - \alpha_{16} Leverage_i + \alpha_{17} Dividend Yield_i + \alpha_{18} Industry Type_i - \alpha_{19} Size of the Firm_i + \varepsilon_i$						
	Panel A: SA firms only ( $n=84$ )	Panel B: Sweden firms only ( $n=94$ )	Panel C: UK firms only ( $n=108$ )			
Multiple $R$	0.585	0.667	0.673			
$R$ Square	0.342	0.445	0.453			
Adjusted $R$ Square	0.262	0.385	0.403			
Standard Error	2.077	2.702	7.189			
ANOVA:	14.814	7.482	9.024			
F Statistic (Sig.)	(0.000 $\alpha$ )	(0.000 $\alpha$ )	(0.000 $\alpha$ )			
	$t$ statistic	$P$ value	$t$ statistic	$P$ value	$t$ statistic	$P$ value
Intercept	2.484	0.015 $\beta$	2.825	0.006 $\alpha$	1.229	0.222
$PerOutDir$	1.808	0.075 $\gamma$	-1.196	0.235	0.635	0.527
$PerInsOwn$	-0.546	0.586	1.792	0.074 $\gamma$	0.352	0.725
$Duality$	-2.650	0.010 $\beta$	-2.606	0.011 $\beta$	-2.314	0.023 $\beta$
$Board Size$	-1.554	0.124	-1.086	0.280	1.597	0.113
$ROA$	0.009	0.993	0.479	0.633	0.074	0.942
$Leverage$	-2.767	0.007 $\alpha$	-2.237	0.028 $\beta$	-2.778	0.007 $\alpha$
$Dividend Yield$	-0.517	0.606	-0.452	0.652	6.313	0.000 $\alpha$
$Industry Type$	-0.354	0.723	2.794	0.006 $\alpha$	1.620	0.109
$Size of the Firm$	1.005	0.318	-0.301	0.764	-0.025	0.980

Where:  $\alpha$  = significant 1% confidence level;  $\beta$  = significant 5% confidence level;  $\gamma$  = significant 10% confidence level.  $TVAE_i$  = Value Added Coefficient Index score for company  $i$  for 1998 financial year;  $PerOutDir_i$  = ratio # directors not directly employed with or having professional ties to firm to total board size as reported in 1998 annual report of company  $i$ ;  $PerInsOwn_i$  = ratio of # outstanding common shares held by inside directors to total # outstanding common shares of firm at end 1998 financial year for company  $i$ ;  $Duality_i$  = dummy variable—firms with same individual acting as CEO and Chairperson as reported in 1998 annual report of company  $i$  coded one, otherwise zero;  $Board Size_i$ : directors serving on the board of company  $i$  at the end of 1998;  $ROA$ : ratio of a firm's operating net income to average total assets for 1997 and 1998 for company  $i$ ;  $Leverage_i$ : average of total debt divided by total shareholders' equity as reported in each firm's 1997 and 1998 annual report for company  $i$ ;  $Dividend Yield_i$ : average of total debt divided by total shareholders' equity as reported in each firm's 1997 and 1998 annual report for company  $i$ ;  $Industry Type_i$ : dummy variable with company  $i$  determined to be R&D intensive coded a one (1), otherwise coded a zero (0);  $Size of the firm_i$ :—natural log of annual sales as reported in each firm's 1998 annual report for company  $i$ ;  $\chi_{1-9}$  = coefficients of variables 1 thru 9; and  $\varepsilon_i$  = residual term.

C). Overall, and across the three countries, the empirical results presented in Table 4 support only Hypothesis 3a whilst Hypothesis 4a is rejected.

### 5.3. Tests of 1b, 2b, 3b, and 4b

Three regressions reported in Table 5 with TVAPC as the dependent variable are all statistically significant ( $P < .001$ ). The regression including only SA sample firms explains



the highest level of variation in the dependent variable (see Table 5, Panel A). The regression including only Swedish firms explains the least (see Table 5, Panel B). Coefficients representing the four independent variables are only statistically significant in two cases. First, the coefficient for *PerOutDir* is positive and statistically significant ( $P<.01$ ) in the regression including SA sample firms only (see Table 5, Panel A). Second, the coefficient representing *Board size* in the regression including UK sample firms only (see Table 5, Panel C) is positive and is moderately statistically significant ( $P<.10$ ). Based on findings reported in Table 5, Hypotheses 2b and 3b are rejected.

5.4. Tests of 1c, 2c, 3c, and 4c

Table 6 presents results of multiple regression analysis with TVAIC as the dependent variable. All regression models are statistically significant ( $P<.01$ ). The regression comprising only SA sample firms (see Table 6, Panel A) explained the highest variation (38.6%) in TVAIC. Conversely, the regression comprising only UK sample firms (see Table 6, Panel C) explained the least variation (30.4%). Consistent with Hypothesis 3c, the findings show that the coefficients for *Duality* are negative and statistically significant ( $P<.05$ , Panels A and B;

Table 5  
Multiple regression of the entire sample and TVAPC

General model: $TVAPC_i = \alpha_0 + \alpha_1 PerOutDir_i + \alpha_2 PerInsOwn_i - \alpha_3 Duality_i + \alpha_4 Board Size_i + \alpha_5 ROA_i - \alpha_6 Leverage_i + \alpha_7 Dividend Yield_i + \alpha_8 Industry Type_i - \alpha_9 Size of the Firm_i + \epsilon_i$						
	Panel A: SA firms only (n=84)	Panel B: Sweden firms only (n=94)	Panel C: UK firms only (n=108)			
Multiple R	0.661	0.415	0.653			
R Square	0.479	0.273	0.427			
Adjusted R Square	0.427	0.184	0.374			
Standard Error	1.596	0.793	7.296			
ANOVA: F	14.830	7.797	8.106			
Statistic (Sig.)	(0.000 $\alpha$ )	(0.000 $\alpha$ )	(0.000 $\alpha$ )			
	t statistic	P value	t statistic	P value	t statistic	P value
Intercept	1.403	0.165	-0.168	0.867	-1.426	0.157
PerOutDir	3.456	0.001 $\alpha$	-0.202	0.840	0.376	0.708
PerInsOwn	-0.322	0.748	1.039	0.302	0.351	0.726
Duality	-1.357	0.179	-0.049	0.961	-0.231	0.818
Board Size	1.448	0.152	-0.270	0.788	1.722	0.088 $\gamma$
ROA	4.956	0.000 $\alpha$	1.488	0.141	1.789	0.077 $\gamma$
Leverage	-5.095	0.000 $\alpha$	-3.199	0.002 $\alpha$	-1.031	0.305
Dividend yield	0.608	0.545	-0.324	0.746	2.673	0.009 $\alpha$
Industry type	0.103	0.919	6.192	0.000 $\alpha$	-0.491	0.625
Size of the firm	-4.872	0.000 $\alpha$	-0.478	0.634	-1.937	0.056 $\gamma$

Where: TVAPC=VA efficiency of company, from its PC for 1998. Other independent variables and control factors are defined in Table 4.

Table 6  
Multiple regression of the entire sample and TVAIC

General model: $TVAIC_i = \alpha_1 + \alpha_{11} PerOutDir_i + \alpha_{12} PerInsOwn_i - \alpha_{13} Duality_i + \alpha_{14} BoardSize_i + \alpha_{15} ROA_i - \alpha_{16} Leverage_i + \alpha_{17} DividendYield_i + \alpha_{18} IndustryType_i - \alpha_{19} SizeoftheFirm_i + \varepsilon_i$						
	Panel A: SA firms only (n=84)	Panel B: Sweden firms only (n=94)	Panel C: UK firms only (n=108)			
Multiple R	0.673	0.646	0.602			
R Square	0.452	0.418	0.363			
Adjusted R Square	0.386	0.355	0.304			
Standard Error	1.403	2.582	0.965			
ANOVA:	6.795	6.697	6.202			
F Statistic (Sig.)	(0.000α)	(0.000α)	(0.000α)			
	t statistic	P value	t statistic	P value	t statistic	P value
Intercept	−1.609	0.112	0.553	0.582	−1.290	0.200
PerOutDir	0.254	0.801	1.236	0.220	1.563	0.121
PerInsOwn	−1.175	0.244	2.628	0.010β	0.029	0.977
Duality	−2.380	0.020β	−2.127	0.036β	−1.890	0.062γ
Board size	−0.654	0.515	1.054	0.295	1.119	0.266
ROA	−2.960	0.004α	1.358	0.178	1.368	0.175
Leverage	−1.700	0.093γ	2.499	0.014β	0.488	0.627
Dividend yield	−1.458	0.149	−0.154	0.878	0.222	0.825
Industry type	−0.226	0.822	0.466	0.643	−0.546	0.586
Size of the firm	−4.054	0.000α	−2.777	0.007α	−3.713	0.000α

Where: TVAIC=VA efficiency of company<sub>i</sub> from its IC (human capital and structural capital) for 1998; that is, HCE + SCE. Other independent variables and control factors are defined in Table 4.

$P < .10$ , Panel C). Findings reported in Table 6 Panel C (regression containing only Swedish firms) show the coefficient for *PerInsOwn* is positive and statistically significant ( $P < .01$ , Table 6, Panel B). Coefficients representing *PerInsOwn* in the remaining two regressions (Table 6, Panels A and C), however, are not statistically significant. The results in Table 6 indicate no relationship between TVAIC and *PerOutDir*; consequently, Hypothesis 1c is rejected. Finally, coefficients for *Board size* in the three regressions reported in Table 6 were negative and statistically insignificant; thus, Hypothesis 4c is rejected.

## 6. Concluding remarks and future research initiatives

The general purpose of this study is to provide an international comparative analysis of the association between four board features and corporate performance. These four board features are (1) proportion of outside directors, (2) percentage of inside directors' ownership, (3) duality, and (4) size of the board. In contrast to the bulk of prior research, the present study defines corporate performance within the concept of VA. Further, rather than considering VA within a holistic perspective, the present study examines the association between board



features and efficiency of VA by the two major elements of a firm's resource base—namely PC and IC resources. Overall, empirical findings fail to show an unconditional link between board features and corporate performance across any of the three nations included in the present study. This result is consistent with prior empirical research utilizing U.S. data (i.e., Hermalin & Weisbach, 1991; Brickley et al., 1997; Klein, 1998). No specific board feature is associated with corporate performance. Rather, results show some significant associations between individual board features and individual measures of corporate performance in one nation or the other, but not consistently across all three.

While the present study builds on an international setting, further research may address the impact of the introduction of codes or best practice guides of corporate governance on the efficiency of VA efficiency by a firm's PC and IC over time. Results of that type of research could then be compared with findings from studies of board feature—corporate performance links for nations that have not implemented codes or best practice guides of corporate governance. Other research could evaluate the links between board features and the VA by a firm's key resource bases with respect to corporate decisions that allow managerial opportunism such as the adoption of anti-takeover devices or the adoption of CEO evaluation processes. Finally, other research could utilize alternative theoretical frameworks—such as resource-dependence theory or institutional theory—to investigate possible links among other board features, corporate governance mechanisms, and corporate performance.

Overall, this study makes three unique contributions. First, it provides the first large-scale evidence about the absence of systematic association between board features (composition, structure, and ownership) and corporate performance, which is defined as the efficiency of value added by a firm's resources. In addition, the present study further advances the analysis to determine if board features influence the efficiency of value added by a firm's two major resource base—(1) PC resources and (2) IC resources. Second, the study also contributes by conducting an international comparative analysis of board feature—corporate performance links in nations offering similar but diverse socio-political, economic and corporate governance environments. In particular, the present study provides evidence of associations between board features and corporate performance in nations—namely SA and Sweden—previously ignored in the literature. Finally, the present study provides one of the first attempts to capture the concept of IC. This is an important advance given the increasing significance of this concept and the growing disparity between a firm's book value and market value. Application of the VAIC methodology will assist in developing future research initiatives using these alternative measures to better meet the business environment of the information age.

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## Appendix A. Steps in Calculating VAIC for the Dependent Variables

### Summary of basic information for company *i*

Interest Expense ( $I_i$ )	=\$214,700,000
Depreciation expense ( $DP_i$ )	=\$228,200,000
Dividends ( $D_i$ )	=\$284,900,000
Corporate taxation ( $T_i$ )	=\$555,300,000
Equity of minority shareholders in net income of subsidiaries ( $M_i$ )	=\$286,200,000
Profits retained for the year ( $R_i$ )	=\$471,500,000
Book value of net assets ( $CE_i$ )	=\$3,978,100,000
Salaries and wages ( $HC_i$ )	=\$1,749,700,000

Required Equation in Calculation	Computation
$VA_i = I_i + DP_i + D_i + T_i + M_i + R_i$ (Eq. (2))	$VA = \$214,000,000 + \$228,200,000 + \$284,900,000 + \$555,300,000 + \$286,200,000 + \$471,500,000 = \$2,040,100,000$
$CEE_i = VA_i / CA_i$ (Eq. (3))	$CEE_i = 2,040,100,000 / 3,978,100,000 = 0.513$
$HCE_i = VA_i / HC_i$ (Eq. (4))	$HCE_i = 2,040,100,000 / 1,748,700,000 = 1.167$
Part (a): $SC_i = VA_i - HC_i$ (Eq. (5))	$SC_i = 2,040,100,000 - 1,748,700,000 = 291,400,000$
Part (b): $SCE_i = SC_i / VA_i$ (Eq. (6))	$SCE_i = 291,400,000 / 2,040,100,000 = 0.143$
$VAIC_i = CEE_i + HCE_i + SCE_i$ (Eq. (1))	$VAIC_i = 0.513 + 1.167 + 0.143 = 1.823$
$TVAE_i = VAIC_i$	$TVAE_i = 1.823$
$TVAIC_i = HCE_i + SCE_i$	$TVAIC_i = 1.167 + 0.143 = 1.310$
$TVAPC_i = CEE_i$	$TVAPC_i = 0.513$

Where:  $VA_i$  = VA for firm *i* during the 1998 fiscal year is computed as the sum of interest expenses ( $I_i$ ); depreciation expenses ( $DP_i$ ); dividends ( $D_i$ ); corporate taxes ( $T_i$ ); equity of minority shareholders in net income of subsidiaries ( $M_i$ ); and profits retained for the year ( $R_i$ );  $HC_i$  = total salary and wage costs for firm *i* as reported in the 1998 annual report;  $CE_i$  = book value of the total shareholders equity for firm *i* as reported in the 1998 annual report;  $VAIC_i$  = VA intellectual coefficient for company *i* for 1998 fiscal year;  $CEE_i$  = capital employed efficiency coefficient for company *i* for 1998 fiscal year;  $HCE_i$  = human capital efficiency coefficient for company *i* for 1998 fiscal year;  $SCE_i$  = structural capital efficiency coefficient for company *i* for 1998 fiscal year;  $TVAE_i$  = total VA efficiency of company *i* for 1998 fiscal year from its entire resource base;  $TVAIC_i$  = total VA efficiency of company *i* for 1998 fiscal year from its entire IC resource base; and  $TVAPC_i$  = total VA efficiency of company *i* for 1998 fiscal year from its PC resource base.

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## Discussion

# International comparative analysis of the association between board structure and the efficiency of value-added by a firm from its physical capital and intellectual capital resources: A discussion

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## 1. Introduction

The Ho and Williams (2003) (henceforth H&W) paper provides descriptive evidence on the association between corporate performance and board characteristics using a sample of publicly traded firms listed on the Johannesburg, Stockholm, and London stock exchanges. Unlike prior research using U.S. data, H&W define corporate performance in terms of “value-added” (VA) measures. H&W summarize their findings by stating that “at best board features—corporate performance links are relatively weak (or non-existent) across different domestic settings and contrasting corporate governance environments.”

Given that prior research using U.S. data is unable to document a relationship between board characteristics and firm performance cross sectionally, one can certainly ask several questions: Why are H&W studying a variable (e.g., board size) that does not seem to matter? In other words, why is it important to document a link between board characteristics and performance outside the United States? A related question pertains to the extent to which the H&W paper addresses an important accounting issue related to corporate governance.

I think the relevance of board in influencing corporate performance is potentially interesting. To the extent that accounting researchers have a comparative advantage in measuring corporate performance, documenting an association between board features and

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corporate performance is of interest. My comments are intended to focus on the difficulties of drawing any inferences based on the empirical tests conducted by H&W. Given my concerns about the paper with respect to hypotheses development, research design, measurement of empirical proxies, and sample selection, it is not clear (to me) what can be learned from testing the association between corporate performance and board characteristics in the international setting studied by H&W. The remainder of this discussion focuses on my concerns.

## **2. Hypotheses development**

Hermalin and Weisbach (2003) note that there is an absence of a formal theory linking board influence on corporate performance and that much of the empirical work in the area is based on intuition. H&W paper is descriptive and does not attempt to develop a formal model linking board influence on corporate performance. In my view, developing and documenting the channels through which board influences corporate performance is a worthwhile area for future research (see Bushman & Smith, 2001).

In this version of the paper, H&W tabulate and discuss major corporate governance characteristics and guidelines in the three sample countries covered by this study. Nevertheless, I still find the institutional information to be insufficient for me to decide whether the hypotheses developed in the U.S. context can be reliably transplanted in a different context (such as Sweden).

## **3. Research design**

Fig. 1 from Hermalin and Weisbach (2003) illustrates the joint endogeneity problem plaguing work on board of directors. Given that firm performance is a result of the actions of previous directors and that firm performance itself potentially influences the choice of subsequent directors, endogeneity problem is pervasive in studies linking board features to firm performance. Like many other prior empirical works, this paper does not consider the endogeneity issue.

Furthermore, H&W do not specifically describe the time period over which firm performance is measured. I assume that the authors examine contemporaneous association between annual firm performance measures and board features. If board features influence board actions, and board actions influence future firm performance, then empirical tests conducted to link contemporaneous corporate performance and board features suffer from a mismatch problem.

### **3.1. Dependent variable**

Several issues relating to the measures of dependent variable are worth noting. First, H&W use the VA intellectual coefficient methodology developed by Ante Pulic to derive measures of firm performance. There is no discussion in the paper whether companies in actual practice

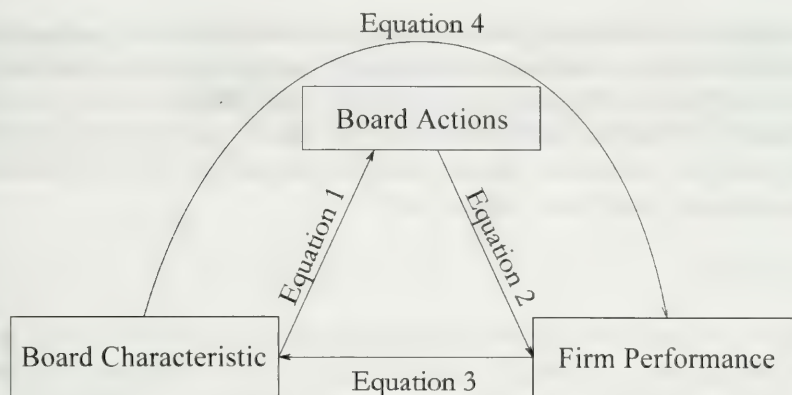


Fig. 1. The joint endogeneity problem plaguing work on boards of directors (Hermalin & Weisbach, 2003, p. 12).

have adopted the VA intellectual coefficient for performance measurement and/or incentive compensation. Similarly, it is not clear (to me) whether these measures have gained acceptance among academics. The citations of Antle Pulic's work are listed as being available on the Internet. The concern here is about the reliability of the metrics and their acceptance in academia.

Second, H&W allude to the measures of dependent variable as a tool "to evaluate the efficiency of value-added." It is not clear why absolute as opposed to relative (industry-adjusted) measures of firm performance are appropriate for empirical analysis. Finally, if one substitutes Eqs. (3), (4), and (5) into Eq. (1), then the value-added intellectual coefficient (TVAE) for an individual firm is:

$$\text{TVAE} = [\text{VA}/\text{book value of net assets}] + [\text{VA}/\text{total salaries and wage costs}] \\ + [(\text{VA} - \text{total salaries and wage costs})/\text{VA}]$$

The above equation suggests that VA is counted more than once in calculating TVAE. This double counting calls into question the validity of the firm performance measures used in the paper. It would be informative to know the correlations between TVAE and its components.

Given the problems with the measures, the onus is on H&W to build a stronger case of why VA measures are more appropriate than the traditional measures of corporate performance. In Appendix B, H&W report results of regressions where the dependent variables are market to book ratio and accounting return on assets. Again, the results based on the association between these traditional measures of corporate performance and board characteristics are weak. An alternative firm performance metric to consider is annual stock returns.

### 3.2. Test variables

The construct that is attempted to be captured by the test variables is board independence. The four proxies used to capture the construct are percentage of outside directors to total



directors, percentage of outstanding shares owned by insider directors, representation of the chief executive officer as the chairperson of the board, and number of directors serving on the board. To the extent that board independence does not manifest itself in the four proxies used in this study, there is a construct validity threat. It may also be worthwhile to conduct a factor analysis using the four proxies to identify common factors, if any, and retaining factors identified as significant in the multivariate tests.

### 3.3. *Sample selection*

I was struck by the fact that while the initial sample consisted of all publicly traded firms listed on the Johannesburg, Stockholm, and London stock exchanges, the final sample consisted of 286 sample firms from three countries. Footnote 9 alludes to original 240 companies, a final survey, and nonresponse bias test. It would be useful to discuss how the original 240 companies were selected and the trade-offs involved in making this research design choice. Also, a sample reconciliation indicating reasons for deletions would be useful.

## 4. Policy implications

H&W make several statements about the implications of their results for uniformly mandated governance structures. For example, in the abstract, they state that their evidence “refutes the notion that uniform board structures be mandated.” Similarly, in the conclusions section, they state that their findings “raise further doubts about propositions by some corporate governance reformists to mandate board features through law.” It is not clear to me how the findings reported in this paper can be generalized to a regulatory regime where uniformly mandated governance structures are in force. Results reported in the paper are based on current regulatory regime. In a uniformly mandated governance structure, incentives of the board of directors may differ significantly. As a result, it is inappropriate to draw policy implications based on the findings of H&W to uniformly mandated governance structure.

## 5. Conclusions

H&W attempt to document an association between board characteristics and corporate performance in an international setting outside the United States. Clearly, the role of boards as a corporate governance mechanism is important to investors, regulators, users, and producers of financial statements. Despite the importance of this area, I believe that the paper does not provide credible evidence on the linkages between board features and corporate performance.

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## Reply

# Reply to “International comparative analysis of the association between board structure and the efficiency of value added by a firm from its physical capital and intellectual capital resources: A discussion”

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## 1. Introduction

Acceptance of intellectual capital as a major resource does not alleviate measurement problems. In our paper, we sought to broaden the scope of present intellectual capital research into the fields of accounting and corporate governance. Professor Inder K. Khurana and other conference participants raise some interest points regarding our paper. We seek to specifically address those raised by Professor Khurana and to provide further insights into the contribution of this paper.

## 2. VAIC as an acceptable method

The methodology underlying the proxy measurement of the dependent variable receives some comment in Khurana's (2003) discussion. In part, we feel the comments of Khurana stem from a lack of familiarity with this approach rather than knowledge that the methodology is unaccepted. The pioneer of VAIC works for a relatively small institution called the Austrian Intellectual Capital Research Center (AICRC). Second, the primary objective of AICRC (including Ante Pulic) is the promotion and development of intellectual capital and its measurement in German-speaking nations and Eastern European nations. Finally, efforts to promote VAIC have been concentrated in the field of intellectual capital/knowledge management rather than the accounting or finance disciplines.

Our article does provide specific reference to the commercial use of VAIC by the Nova Kreditna banka Maribor (2001). We are also aware of the use of—and interest—in VAIC by

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other commercial enterprises.<sup>1</sup> Apart from its application at the firm level, the Chamber of Economy in Croatia utilized the VAIC methodology in measuring the performance of Croatian firms, and the Croatian economy at national and regional levels (International Business Efficiency Consulting, 2002). Also, earlier research by Williams (2001) was described by Bontis (2001, p. 181)—a leading expert on intellectual capital—as “an elegant extension of the pioneering work” of Pulic (1998). Generally, amongst academics in the intellectual capital discipline the work of Ante Pulic in developing the VAIC is recognized as groundbreaking (Bontis & Nikitopoulos, 2001).

### **3. Need for board structure–corporate performance link research**

Within the social sciences the test of significance has virtually become the single quintessential method for establishing inferences (see, e.g., Johnstone, 1986; Lindsay, 1995; Tomkins & Groves, 1983). Indeed, Gigerenzer et al. (1989) argue that the test of significance is often regarded as the *sine qua non* of the scientific method. The excessive focus on this methodological criterion of adequacy may unduly impede the quest of scientific research and may lead readers to ignore the key issues (see, e.g., Christie, 1990; Hubbard & Armstrong, 1994).

As reported in our paper—and by Khurana (2003)—the tests of significance were generally insignificant. However, we argue that this is not necessarily evidence of no relationship. Lindsay (1994, p. 34) remarked researchers in the social sciences “display a positive result orientation whereby there is a tendency to equate scientific significance with statistical significance.” Further, it has been argued results producing negative results are sometimes perceived to be a signal of poor and adequate research design (Gigerenzer et al., 1989).

### **4. Sample selection**

Khurana (2003) suggests there is a weakness in our study related to the sample selection. We do not consider this a weakness of the research method. We are thankful to Professor Khurana, however, for drawing our attention to this possible cavity in our paper.<sup>2</sup> Our initial sample comprised all firms listed on the Johannesburg, Stockholm and London stock exchanges at the end of 1998. As all data for our study was hand-collected financial and practical limitations limited the number of firms we sought to collect data from. It was decided to randomly select 120 firms (see footnote 2 for a further clarification) from each

<sup>1</sup> Confidentiality precludes us from mentioning other firms directly.

<sup>2</sup> When we started developing our study, we initially decided to randomly select 80 firms from each stock exchange. Based on suggestions from several colleagues that reviewed the research design we decided to expand the selection to 120 from each stock exchange rather than the original 80 (240 in total). The increase in numbers to randomly select was due to concerns about an inability to collect sufficient data. When writing our paper we regretfully wrote 240 in footnote IX rather than the intended 360. Given the reply of Professor Khurana referring to footnote IX whilst mentioning 240 firms we have not made adjustment to our earlier paper so as not to cause confusion.

stock exchange excluding financial and utility sector firms, and foreign incorporated firms. From the randomly selected firms a total for a total of 314 (99 in South Africa, 102 in Sweden and 113 in UK) annual reports were collected. Of the collected annual reports data on board structure characteristics could not be determined for 21 firms (9 in South Africa, 5 in Sweden and 3 in UK). In addition, financial data were incomplete for 8 firms (4 in South Africa, 3 in Sweden and 1 in UK). Firms for which board structure and financial data were missing were excluded from the study. Finally, two firms from South Africa were also identified as subsidiaries of foreign multinationals whilst one firm from the UK was found to be actually incorporated in France. These 3 firms were also excluded from the study.

## 5. Theory development and research design

Khurana (2003) raises concerns regarding the lack of a formal theoretical framework. Generally speaking, we do not feel the endogeneity problem is unique to our study. Rather, they are weaknesses of this body of literature in general.

Khurana (2003) also writes that he cannot determine whether hypotheses developed within the context of the United States can be applied to the domestic settings. Indeed, effect of culture and differences is an area worthy of study.

## 6. Time period

We did consider the potential for a “mismatch problem” raised by Khurana (2003). Various reasons, however, prompted us to follow a contemporaneous approach. For example, there is no overwhelming theoretical or empirical justification in the literature for the use of a lagged approach as opposed to a contemporaneous research design. Also, due to a concern at not being able to collect data from a sufficiently large sample (particularly in South Africa and Sweden) we decided to focus on data drawn from a single data source rather than having to seek two documents from the same firm. Finally, we felt that across the specific time period for this study board structure would have been relatively stable. A general review of the data provides some anecdotal evidence for this conjecture. Also, we conducted some limited empirical tests using a sample of firms where board membership is constant during the 1998 fiscal year. Empirical findings did not indicate any significant variation from results in our paper. Overall, we do not perceive there is a serious “mismatch problem” with our study.

## 7. Policy implications

The final issue from Khurana's (2003) discussion that we wish to reply to relates to the policy implications. We agree that we might have extended the inferences made and wish to thank Professor Khurana for his comments.



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## Reply

# On the myth of “Anglo-Saxon” financial accounting: A response to Nobes

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We welcome the comment of Nobes (2003) as a significant contribution both to the knowledge and understanding and to the debate itself. We accept the evidential points that he makes, without departing from our original prognostication regarding future developments. Readers, and eventually history, will reach their own conclusions.

There are two points that we wish to make related to the list of agreed dramatic proposals. First, the fact that they are agreed to by standard setters does not necessarily imply that they will receive similar levels of support across the spectrum of national systems. Second, and much more important in the context of the original Alexander and Archer (2000) argument, the point is not, as Nobes states, that these conclusions are now part of a consensus of ASA standard setters, rather these conclusions are now part of a consensus of standard setters, period. Nobes' codicil actually points in this direction. All three authors seem to agree that ASA, while of important historical interest, is in diagnostic terms an outdated notion. This does not seem inconsistent with our original proposition that “the notion of Anglo Saxon cooperation” may lack “future explanatory power” (p. 555).

Within a “group,” there will usually, as Nobes says, be differences, sometimes significant and sometimes minor. We believe that Nobes significantly underplays the issue of the preparer override of an accounting standard. He accepts, as he has confirmed to us (letter of 18th January, 2002), that this is likely to be a bone of contention between members of the IASB, with Leisenring and supporters (U.S. background) firmly opposed to the “override” provisions in the existing IAS 1, and Tweedie and Whittington (U.K. background) equally firm in support of them. However, he does not seem to accept that this difference has quite fundamental implications for the whole approach to standard setting and its enforcement.

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FASB standards are significantly more detailed and prescriptive than either U.K. ASB standards or existing IASs (except perhaps the dreaded IAS 39). This is because ASB and IASC/B standards aim to be principle based and to leave room for the exercise of professional accounting judgment in applying the principle on which the standard is based. FASB standards are more prescriptive and rule based because the litigious environment in the United States calls for this. In such an environment, “I followed the rules” is a better defence than “I used my judgment.” It is not at all clear to us which of these two approaches the new IASB will follow. The issue is certainly fundamental. Whether you take the view that ASA no longer exists or that we are all ASA now, the fact remains that the Brits and the Yanks, for solid historical and contextual reasons, are on opposite sides on this matter.

Readers will note that we have commented on, and influenced, the Nobes paper and should be aware that he has also made helpful suggestions on the text of this reply. This has been a constructive debate amongst friends.

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